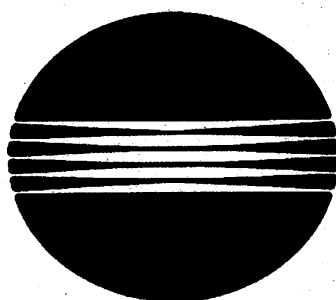


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# EP2051

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GENERAL,  
MECHANICAL/  
ELECTRICAL



MINOLTA

## **SAFETY INFORMATION**

(ALL Areas)

### **CAUTION**

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type  
recommended by the manufacturer.  
Dispose of used batteries according  
to the manufacturer's instructions.

(Denmark only)

### **ADVARSEL!**

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering.  
Udskiftning må kun ske med batteri  
af samme fabrikat og type.  
Levér det brugte batteri tilbage til leverandøren.

(Norway only)

### **ADVARSEL**

Eksplosjonsfare ved feilaktig skifte av batteri.  
Benytt samme batteritype eller en tilsvarende  
type anbefalt av apparatfabrikanten.  
Brukte batterier kasseres i henhold til fabrikantens  
instruksjoner.

(Sweden only)

### **VARNING**

Explosionsfara vid felaktigt batteribyte.  
Använd samma batterityp eller en ekvivalent  
typ som rekommenderas av apparattillverkaren.  
Kassera använt batteri enligt fabrikantens  
instruktion.

(Finland only)

### **VAROITUS**

Paristo voi räjähtää, jos se on virheellisesti asennettu.  
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan  
tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden  
mukaisesti.

# CONTENTS

## GENERAL

1. SPECIFICATIONS .....	G-1
2. PRECAUTIONS FOR INSTALLATION .....	G-4
3. PRECAUTIONS FOR USE .....	G-5
4. HANDLING OF THE CONSUMABLES .....	G-6
5. SYSTEM OPTIONS .....	G-7

## MECHANICAL/ELECTRICAL

1. CROSS-SECTIONAL VIEW .....	M-1
2. COPY PROCESS .....	M-2
3. DRIVE SYSTEM .....	M-4
4. SEQUENTIAL EXPLANATION .....	M-5
5. PC DRUM .....	M-10
6. IMAGING UNIT .....	M-11
6-1. Imaging Unit Drive .....	M-12
6-2. Toner Recycling .....	M-13
7. DEVELOPMENT .....	M-14
7-1. ATDC Sensor .....	M-15
7-2. Magnet Roller .....	M-17
7-3. Developing Bias .....	M-18
7-4. Doctor Blade .....	M-19
7-5. Magnet Roller Lower Filter .....	M-19
8. CLEANING UNIT .....	M-20
8-1. Cleaning Bias .....	M-21
9. TONER HOPPER .....	M-22
9-1. Toner Hopper Locking/Unlocking .....	M-22
9-2. Toner Replenishing .....	M-22
9-3. Shutter .....	M-23
9-4. Toner Hopper Home Position Detection .....	M-23
9-5. Toner Bottle Vibration .....	M-24
9-6. Toner Replenishing Control .....	M-25

---

# CONTENTS

---

10. DRUM CHARGING .....	M-26
11. IMAGE ERASE LAMP .....	M-27
12. OPTICAL SECTION .....	M-31
12-1. Exposure Lamp LA1 .....	M-32
12-2. AE Sensor .....	M-33
12-3. Lamp Reflectors .....	M-34
12-4. Aperture Plates .....	M-34
12-5. Scanner and 2nd/3rd Mirror Carriage Movement .....	M-35
12-6. 4th Mirror Movement .....	M-37
12-7. Lens Movement .....	M-38
13. ORIGINAL SIZE DETECTING SENSORS .....	M-39
13-1. Original Size Detecting Sensors .....	M-39
14. MAIN ERASE LAMP .....	M-41
15. IMAGE TRANSFER AND PAPER SEPARATION .....	M-42
16. PAPER SEPARATOR FINGERS .....	M-44
17. PAPER TAKE-UP/FEED SECTION .....	M-46
17-1. Edge Guide and Trailing Edge Stop .....	M-47
17-2. Drawer Positioning .....	M-48
17-3. Paper Lifting Plate .....	M-48
17-4. Drawer-in-Position Detection .....	M-49
17-5. Universal Tray (1st Drawer) Paper Size Detection .....	M-50
17-6. Paper Empty Detection .....	M-51
17-7. Paper Separating Mechanism .....	M-52
17-8. Paper Take-Up Roll .....	M-53
17-9. Paper Take-Up Retry Control .....	M-54
18. VERTICAL PAPER TRANSPORT .....	M-55
19. SYNCHRONIZING ROLLERS .....	M-56
19-1. Upper Synchronizing Roller Positioning .....	M-57
19-2. Paper Dust Remover .....	M-57
19-3. Synchronizing Roller Control .....	M-58
20. PAPER TRANSPORT .....	M-59
21. FUSING UNIT .....	M-60
21-1. Fusing Temperature Control .....	M-61
21-2. Fusing Rollers Pressure Mechanism .....	M-62
21-3. Oil Roller/Cleaning Roller .....	M-63



---

## CONTENTS

---

22. EXIT UNIT .....	M-64
22-1. Upper/Lower Separator Fingers .....	M-64
22-2. Paper Exit Sensor .....	M-65
23. EXIT/DUPLEX SWITCHING UNIT (OPTION) .....	M-66
24. DEHUMIDIFYING SWITCH (OPTION) .....	M-67
25. MULTI BYPASS TABLE .....	M-68
25-1. Paper Take-Up Mechanism .....	M-69
25-2. Paper Separating Mechanism .....	M-71
25-3. Paper Empty Detection .....	M-72
26. ORIGINAL COVER ANGLE DETECTION .....	M-73
27. COOLING FAN .....	M-74
28. OPTICAL SECTION COOLING FAN .....	M-75
29. MEMORY BACKUP .....	M-76

# GENERAL

## COPY MEDIUM

○: Permissible    X: Not permissible

**MULTIPLE COPIES** : 1 to 99

**WARMING-UP TIME** : 60 sec. or less with room temperature of 20°C and rated power voltage

**FIRST COPY TIME** : A4C or 8-1/2" × 11"C: 5.4 sec. or less  
(in Full size Mode using 1st Drawer)

**CONTINUOUS COPY SPEED (copies/min.): Fed from 1st Drawer**

Area	Size \ Zoom Ratio	×1.00
Metric	A3L	14
	A4L	19
	A4C	25
	B4L	16

Area	Size \ Zoom Ratio	×1.00
Inch	11" × 17" (L)	14
	8-1/2" × 11" (L)	19
	8-1/2" × 11" (C)	25

L: Lengthwise; C: Crosswise

**ZOOM RATIOS**

	Area	Metric	Inch
	Mode		
Fixed	Full Size	×1.000	×1.000
	Reduction	×0.816 ×0.707 ×0.500	×0.785 ×0.647 ×0.500
	Enlargement	×1.154 ×1.414 ×2.000	×1.214 ×1.294 ×2.000
Variable	50% to 200% (in 0.1% increments)		

**LENS** : Through Lens (F = 8.0, f = 180 mm)

**EXPOSURE LAMP** : Halogen Frost Tube Lamp

**FUSING TEMPERATURE** : 190°C

---

**POWER/CURRENT CONSUMPTION (Copier Only)**

Voltage	Exposure Lamp (Rating)	Fusing Heater Lamp (Rating)	Max. Power Consumption	In Standby
115 V 120 V	80 V 262 W	115/120 V 900 W	1180 W	935 W
127 V			1260 W	1005 W
		115/120 V 900 W	1340 W	1035 W
220 V 240 V	160 V 290 W	220/240 V 900 W	1300 W	1035 W
			1420 W	1210 W

**POWER REQUIREMENTS** : 115 V, 120 V, 120-127 V, 220-240 V; 50/60 Hz

**ENVIRONMENTAL CONDITIONS**

<b>Temperature</b>	10 to 30°C with a fluctuation of 10°C or less per hour
<b>Humidity</b>	15 to 85% RH with a fluctuation of 10% RH or less per hour
<b>Ambient Illumination</b>	3,000 lux or less
<b>Levelness</b>	1°(1.75 mm/100 mm)

**DIMENSIONS (Copier Only)** : Width .... 650 mm (25-1/2")  
Depth .... 653 mm (25-3/4")  
Height ... 480 mm (19") (including Original Cover)

**WEIGHT** : 58.2 kg (128-1/4 lbs) (excluding the Copy Tray, Imaging Unit, Original Cover)

## 2 PRECAUTIONS FOR INSTALLATION

### ■ Installation Site

To ensure safety and utmost performance of the copier, the copier should NOT be used in a place:

- Where it will be subject to extremely high or low temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater or ventilator.
- Which puts the operator in the direct stream of exhaust from the copier.
- Which has poor ventilation.
- Where ammonia gas might be generated.
- Which does not have a stable, level floor.
- Where it will be subject to sudden fluctuations in either temperature or humidity.  
If a cold room is quickly heated, condensation forms inside the copier, resulting in blank spots in the copy.
- Which is near any kind of heating device.
- Where it may be splashed with water.
- Which is dirty or where it will receive undue vibration.
- Which is near volatile flammables or curtains.

### ■ Power Source

Use an outlet with a capacity of 115/120/127V, 13.2A or more, or 200/220/240V, 8.1A or more.

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the copier.
- Make the following checks at frequent intervals:
  - Is the power plug abnormally hot?
  - Are there any cracks or scrapes in the cord?
  - Has the power plug been inserted fully into the outlet?
  - Does something, including the copier itself, ride on the power cord?
- Ensure that the copier does not ride on the power cord or communications cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.

### ■ Grounding

To prevent receiving electrical shocks in the case of electrical leakage, always ground the copier.

- Connect the grounding wire to:
  - The ground terminal of the outlet.
  - A grounding contact which complies with the local electrical standards.
- Never connect the grounding wire to a gas pipe, the grounding wire for a telephone, or a water pipe.

### 3 PRECAUTIONS FOR USE

To ensure that the copier is used in an optimum condition, observe the following precautions.

- Never place a heavy object on the copier or subject the copier to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the copier is making copies.
- Do not turn OFF the Power Switch while the copier is making copies.
- Provide good ventilation when making a large number of copies continuously.
- Never use flammable sprays near the copier.
- If the copier becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the Power Switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the copier.
- Do not place a vase or vessel containing water on the copier.
- Be sure to turn OFF the Power Switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the copier.

#### ■ Operating Environment

The operating environmental requirements of the copier are as follows.

- Temperature: 10°C to 30°C with a fluctuation of 10°C per hour
- Humidity: 15% to 85% RH with a fluctuation of 10% RH per hour

#### ■ Power Requirements

The power source voltage requirements are as follows.

- Voltage Fluctuation: AC115/120/127/220/240V  
± 10% (Copying performance assured)  
+6%, -10% (Only AC127V)  
-15% (Paper feeding performance assured)
- Frequency Fluctuation: 50/60 Hz ± 0.3%

## 4 HANDLING OF THE CONSUMABLES

Before using any consumables, always read the label on its container carefully.

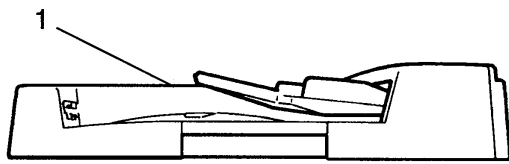
- Use the right toner. The applicable copier model name is indicated on the Toner Bottle.
- Paper is apt to be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded into the Drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- Store the paper, toner, and other consumables in a place free from direct sunlight and away from any heating apparatus.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the copier crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water immediately.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.

### NOTE

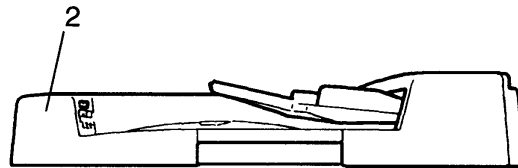
*Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).*



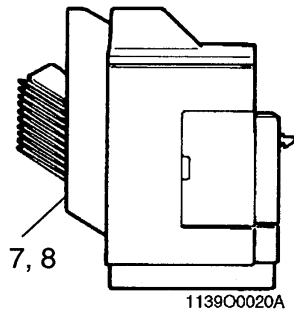
## 5 SYSTEM OPTIONS



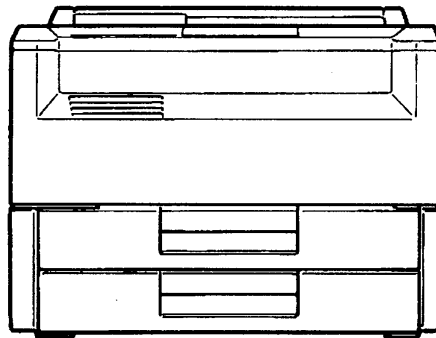
1151O006AA



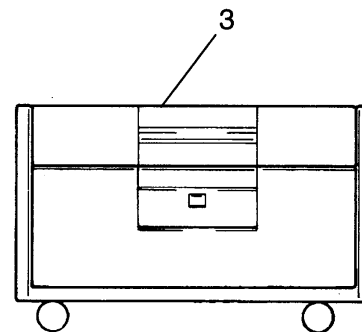
1151O007AA



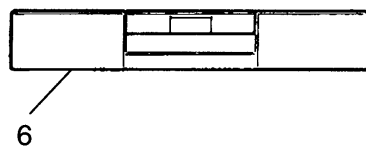
1139O0020A



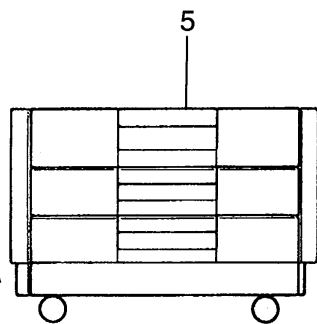
1139O0040A



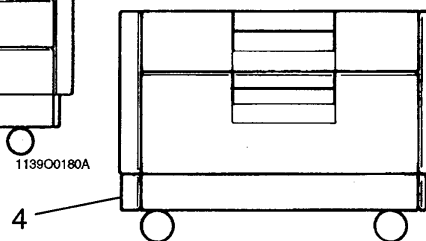
1139O1212A



1139O0030A



1139O0180A

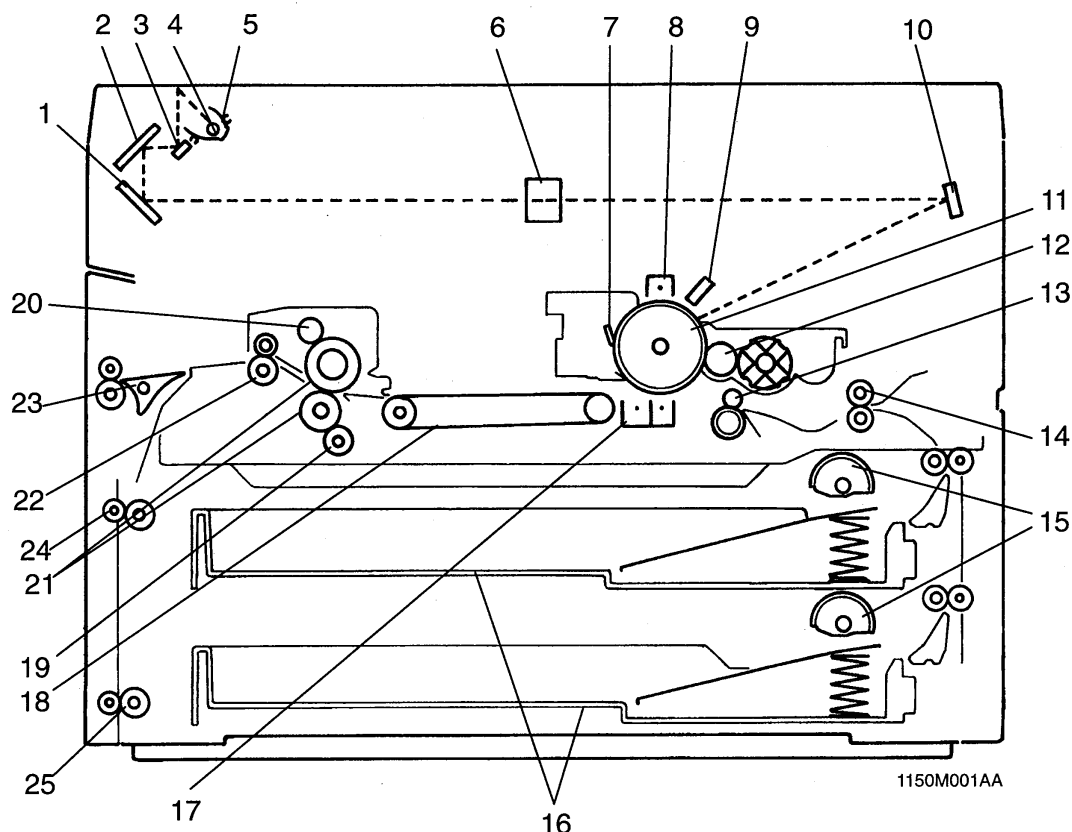


1139O1222A

- |                                     |                              |
|-------------------------------------|------------------------------|
| 1. Automatic Document Feeder AF-5   | 5. Paper Feed Cabinet PF-204 |
| 2. Duplexing Document Feeder AFR-12 | 6. Duplex Unit AD-8          |
| 3. Paper Feed Cabinet PF-104        | 7. 10-Bin Sorter S-106       |
| 4. Duplex Cabinet PF-4D             | 8. Staple Sorter ST-104      |

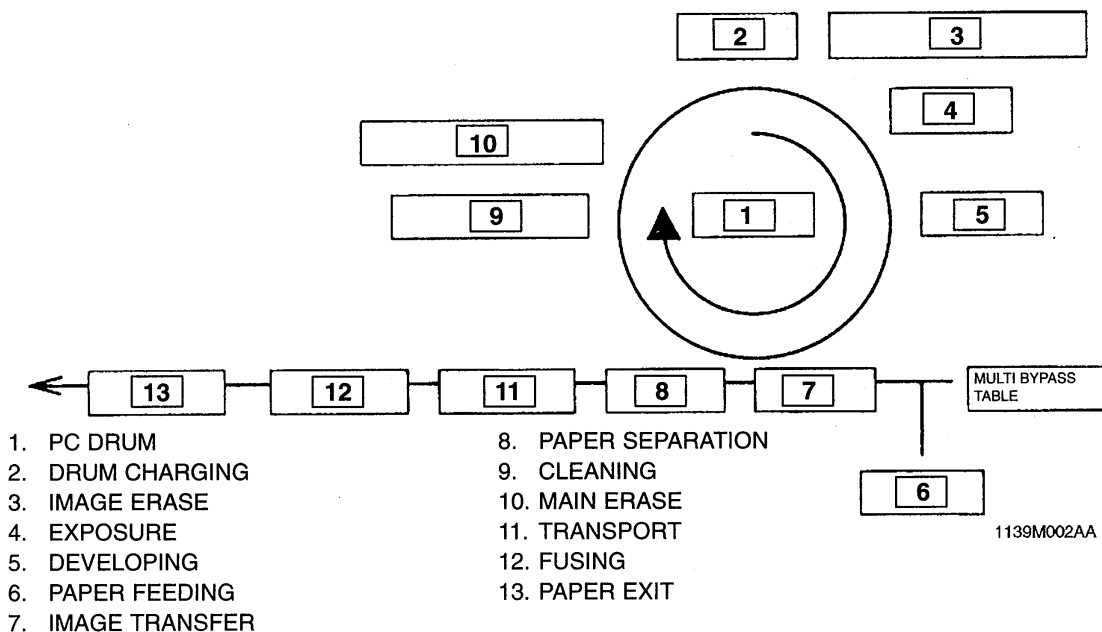
# MECHANICAL/ ELECTRICAL

# 1 CROSS-SECTIONAL VIEW



- |                                           |                                                                                                 |
|-------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1. 3rd Mirror                             | 17. Image Transfer/Paper Separator Coronas                                                      |
| 2. 2nd Mirror                             | 18. Suction Unit                                                                                |
| 3. 1st Mirror                             | 19. Cleaning Roller                                                                             |
| 4. Exposure Lamp LA1                      | 20. Oil Roller                                                                                  |
| 5. Lamp Reflector                         | 21. Upper/Lower Fusing Roller                                                                   |
| 6. Lens                                   | 22. Paper Exit Roller                                                                           |
| 7. Cleaning Blade                         | 23. Exit/Duplex Switching Guide<br>(for optional Duplex Unit AD-8<br>and Sorter S-106 & ST-104) |
| 8. PC Drum Charge Corona                  | 24. Duplex Unit Vertical Transport<br>Roller 1<br>(for optional Duplex Unit AD-8)               |
| 9. Unexposed Areas/Edge Erase<br>Lamp LA3 | 25. Duplex Unit Vertical Transport<br>Roller 2<br>(for optional Duplex Unit AD-8)               |
| 10. 4th Mirror                            |                                                                                                 |
| 11. PC Drum                               |                                                                                                 |
| 12. Sleeve/Magnet Roller                  |                                                                                                 |
| 13. Synchronizing Roller                  |                                                                                                 |
| 14. Transport Roller                      |                                                                                                 |
| 15. 1st/2nd Drawer Paper Take-Up<br>Roll  |                                                                                                 |
| 16. 1st/2nd Drawer                        |                                                                                                 |

## 2 COPY PROCESS



### 1. PC Drum

The PC Drum is an aluminum cylinder coated with a photosensitive semiconductor. It is used as the medium on which a visible developed image of the original is formed.

### 2. Drum Charging

The PC Drum Charge Corona Unit is equipped with a Comb Electrode and a Scorotron Grid to deposit a uniform negative charge across the entire surface of the PC Drum.

### 3. Image Erase

Any areas of charge which are not to be developed are neutralized by lighting up LEDs.

### 4. Exposure

Light from the Exposure Lamp reflected off the original is guided to the surface of the PC Drum and reduces the level of the negative charges, thereby forming an electrostatic latent image.

### 5. Developing

Toner positively charged in the Developer Mixing Chamber is attracted onto the electrostatic latent image changing it to a visible, developed image. A DC negative bias voltage is applied to the Sleeve/Magnet Roller to prevent toner from being attracted onto those areas of the PC Drum which correspond to the background areas of the original.

### 6. Paper Feeding

Paper is fed either automatically from the 1st or 2nd Drawer, or manually via the Multi Bypass Table or Manual Bypass Table. Each Drawer has fingers that function to separate the top sheet of paper from the rest at take-up.

### 7. Image Transfer

The single-wire Image Transfer Corona Unit applies a DC negative corona emission to the underside of the paper, thereby attracting toner onto the surface of the paper.

---

**8. Paper Separation**

The single-wire Paper Separator Corona Unit applies an AC corona emission to the underside of the paper to neutralize the paper. In addition, mechanical paper separation is provided by the two PC Drum Paper Separator Fingers fitted to the Imaging Unit.

**9. Cleaning**

Residual toner on the surface of the PC Drum is scraped off by the Cleaning Blade.

**10. Main Erase**

Light from the Main Erase Lamp neutralizes any surface potential remaining on the surface of the PC Drum after cleaning.

**11. Transport**

The paper is fed to the Fusing Unit by the Suction Belts.

**12. Fusing**

The developed image is permanently fused to the paper by a combination of heat and pressure applied by the Upper and Lower Fusing Rollers.

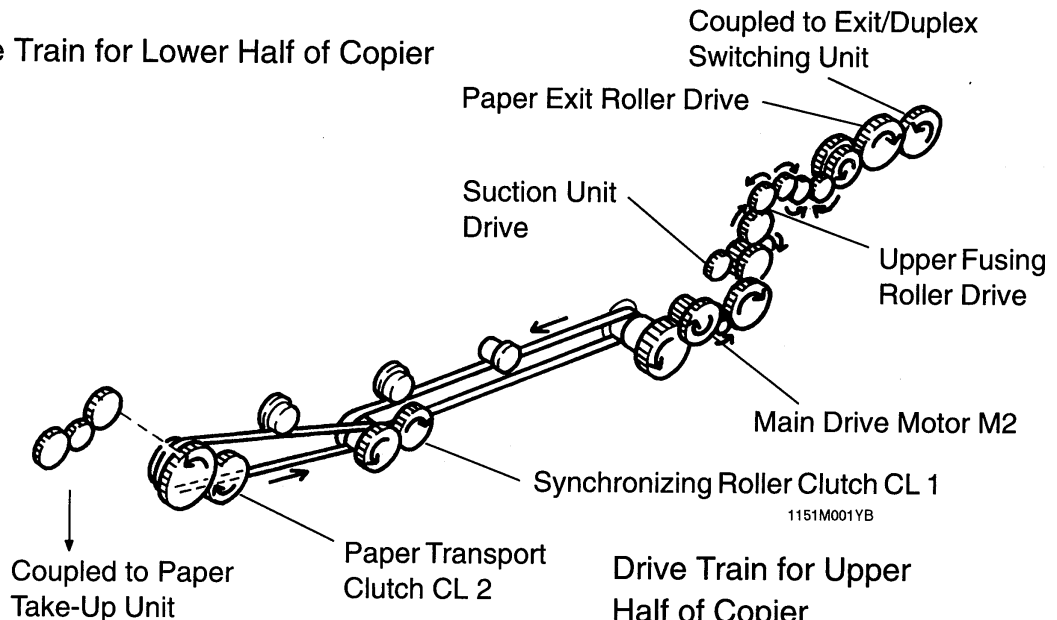
**13. Paper Exit**

After the fusing process the paper is fed out by the Paper Exit Roller onto the Copy Tray.

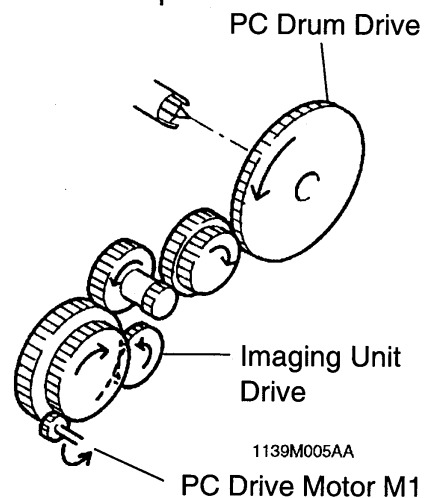
### 3 DRIVE SYSTEM

This copier is equipped with two main drive motors, PC Drive Motor M1 that drives the upper half of the copier (Imaging Unit) and Main Drive Motor M2 which gives drive for the lower half of the copier (paper take-up/feeding and transport mechanism and Fusing Unit). Each has its own drive transmitting gears and timing belts as illustrated below.

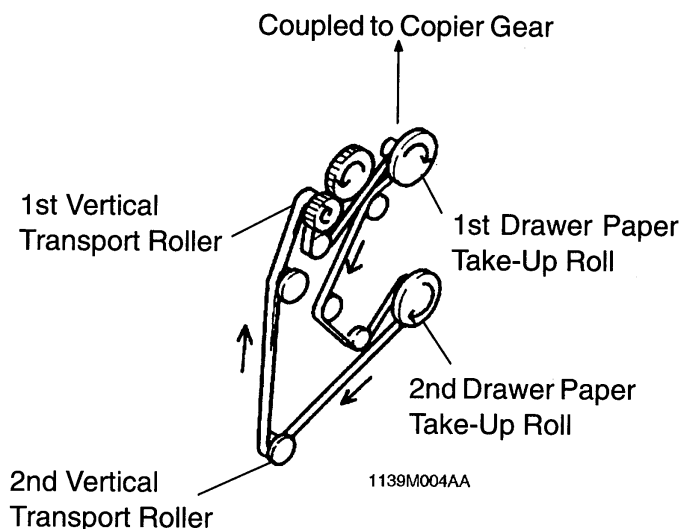
Drive Train for Lower Half of Copier



Drive Train for Upper Half of Copier



Drive Train for Paper Take-Up Unit

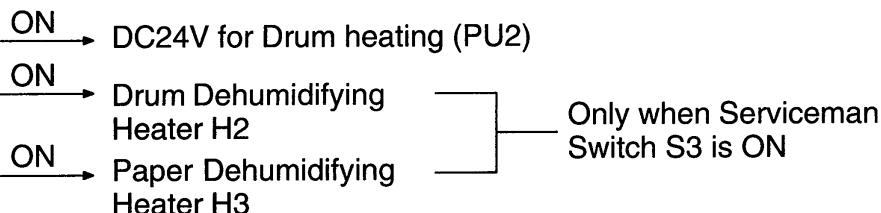


## 4 SEQUENTIAL EXPLANATION

\*Numbers given in rectangles  in the following flowchart are timer values in sec.

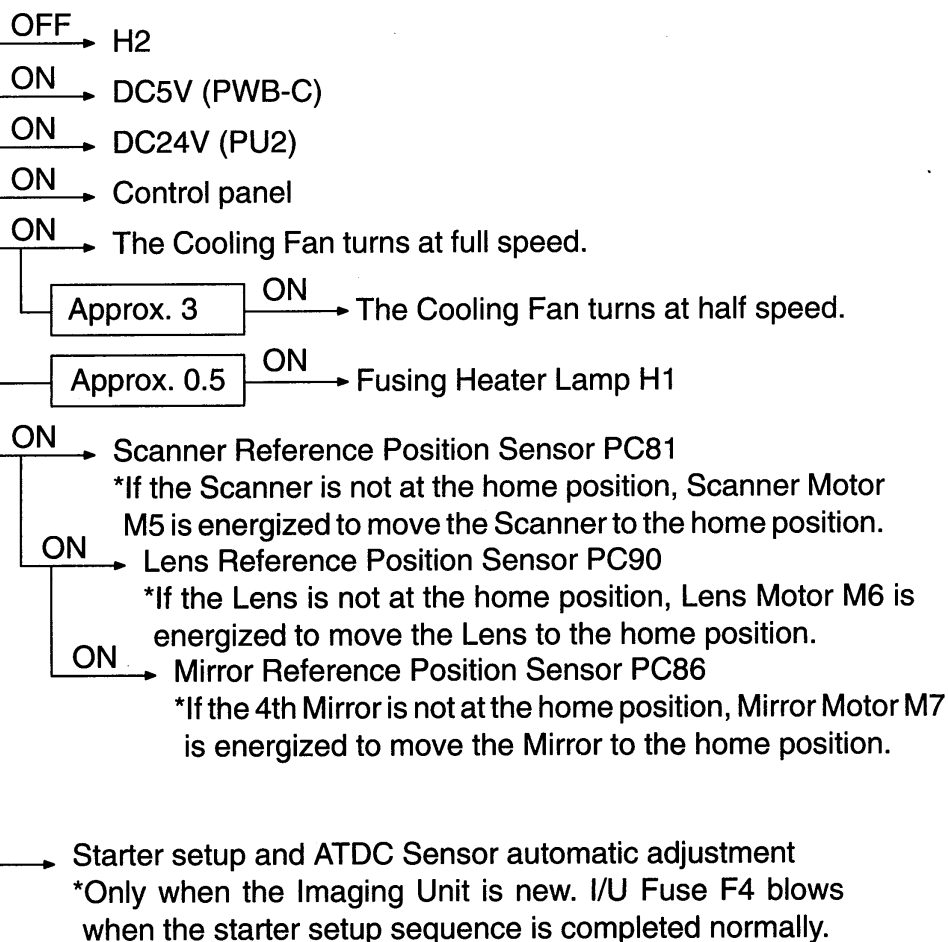
### A The power cord is plugged into the outlet.

Power cord is plugged in.



### B Power Switch S1 is turned ON.

S1 ON



---

C	The Fusing Unit temperature reaches 210°C.
---	--------------------------------------------

Fusing Thermistor 1 TH1 detects 210°C.
----------------------------------------

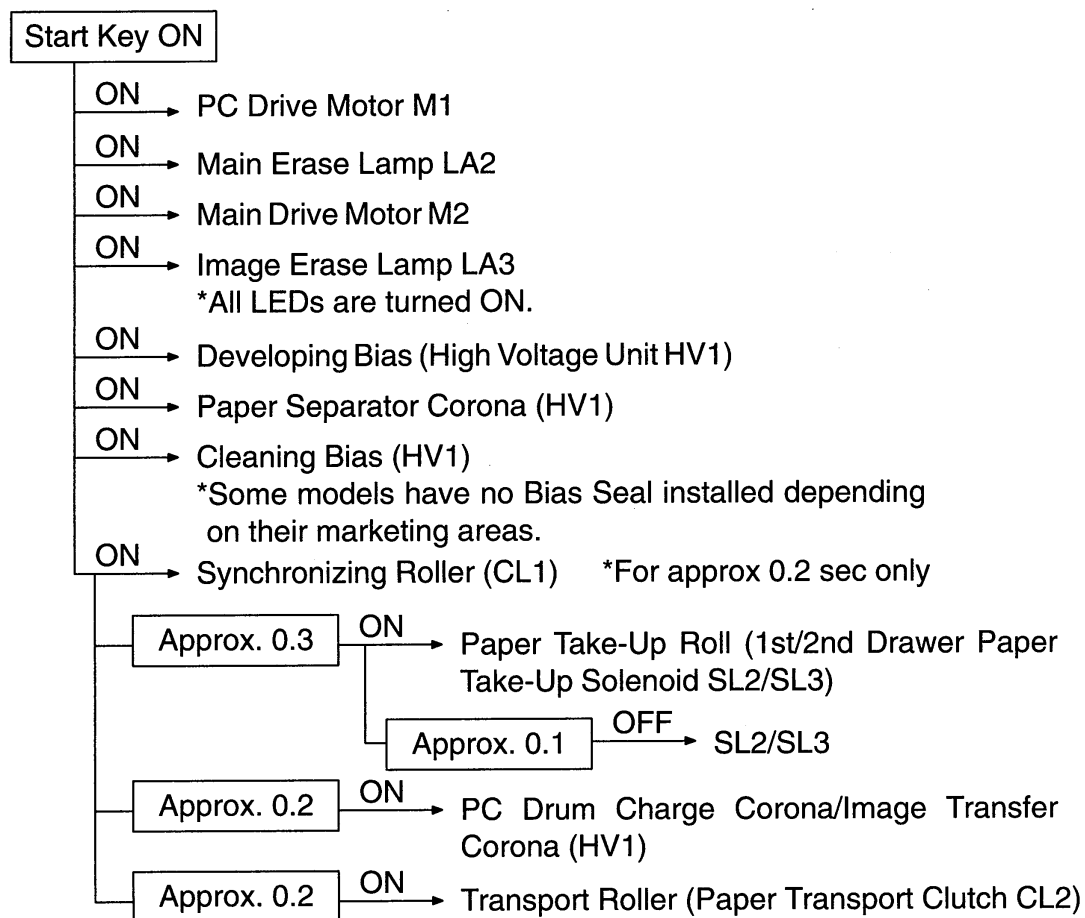
ON/OFF
--------

→ Fusing Heater Lamp H1

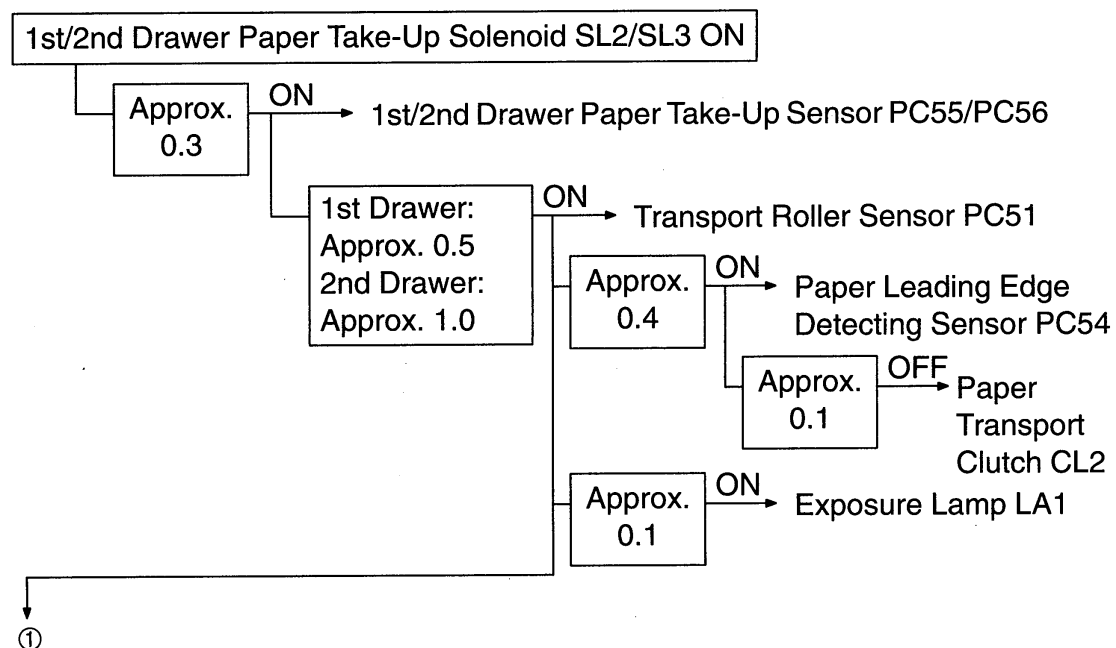
\*The Fusing Unit temperature control is started.

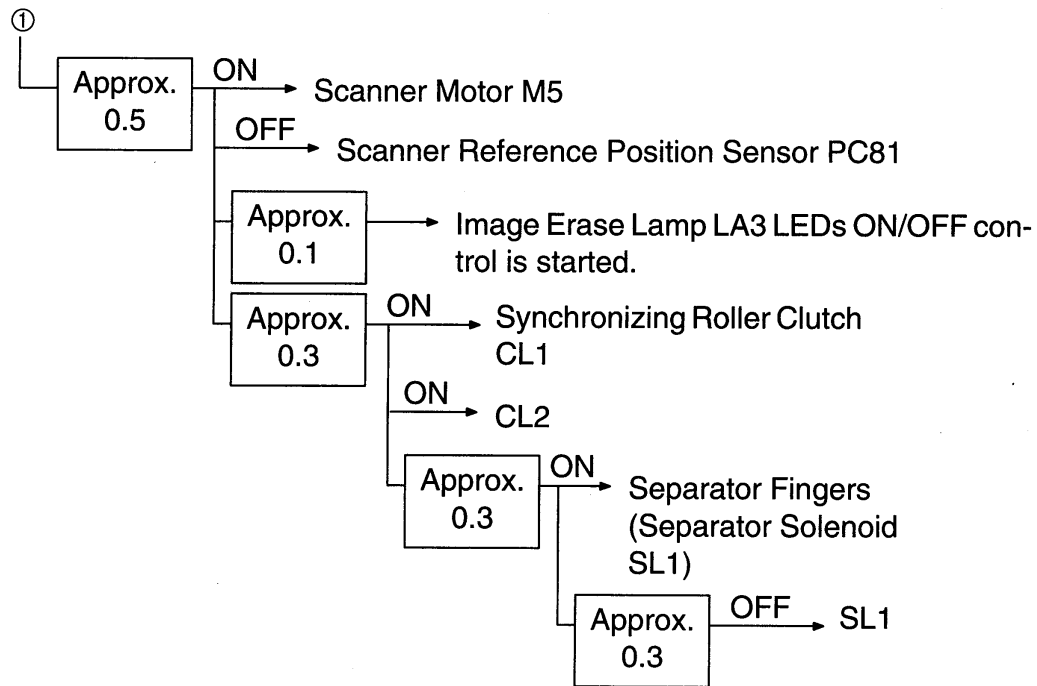


**D The Start Key is pressed.**

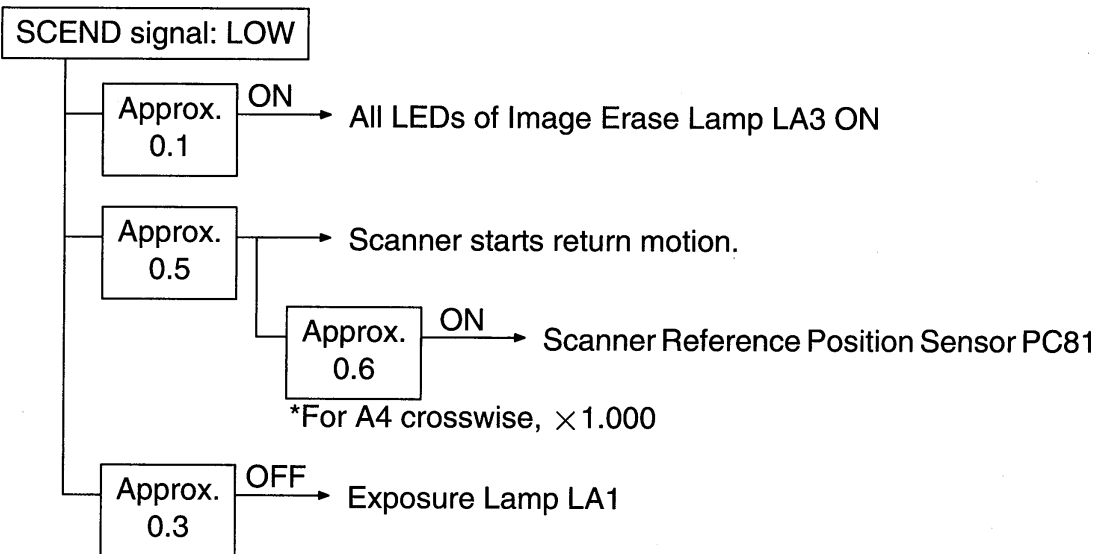


**E Paper is taken up.**

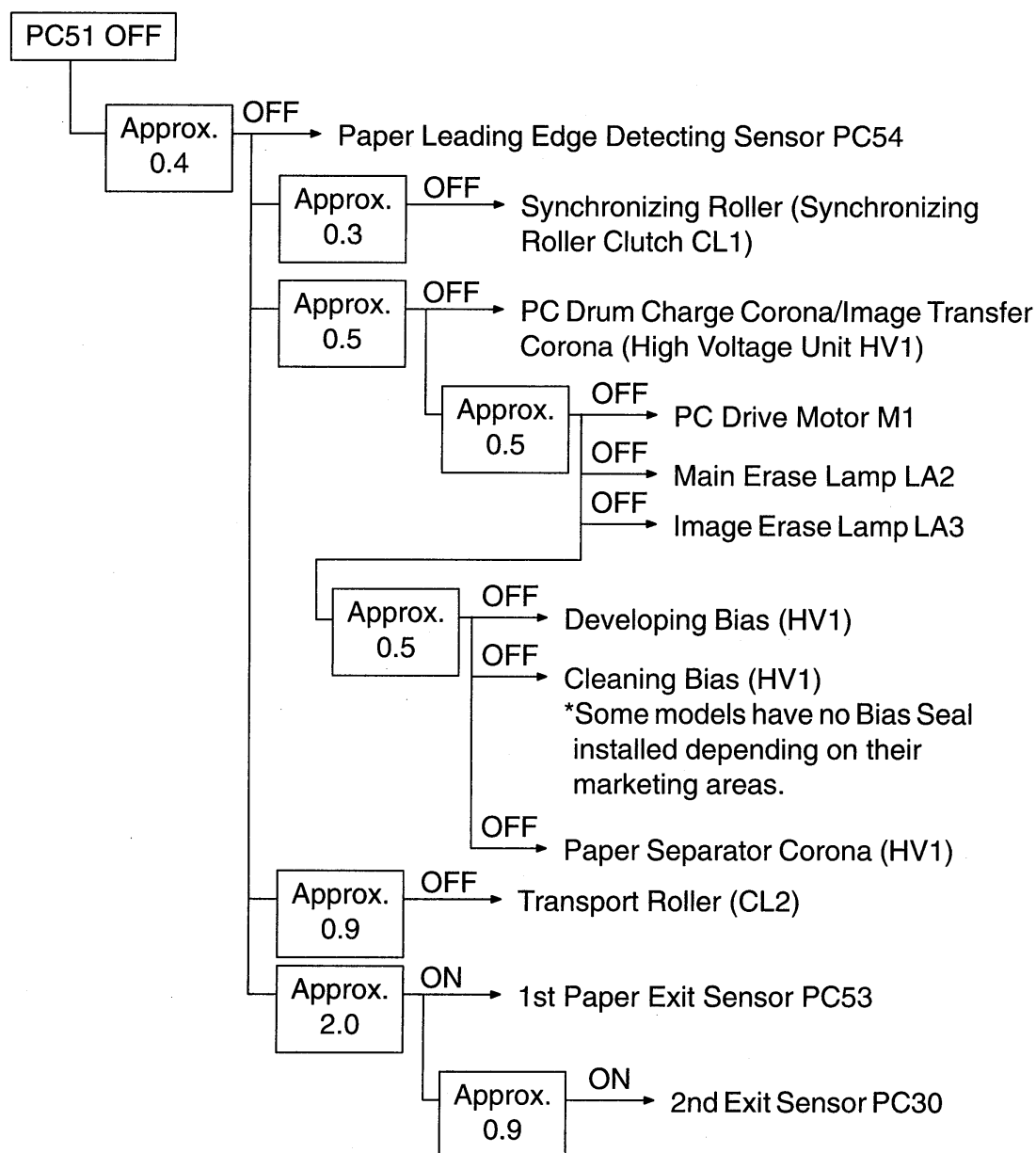




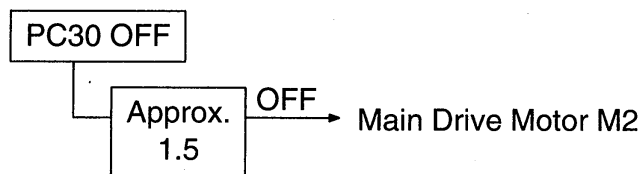
**F A scan motion is completed.**



**G The last paper moves past Transport Roller Sensor PC51.**



**H The paper moves past 2nd Paper Exit Sensor PC30.**



## 5 PC DRUM

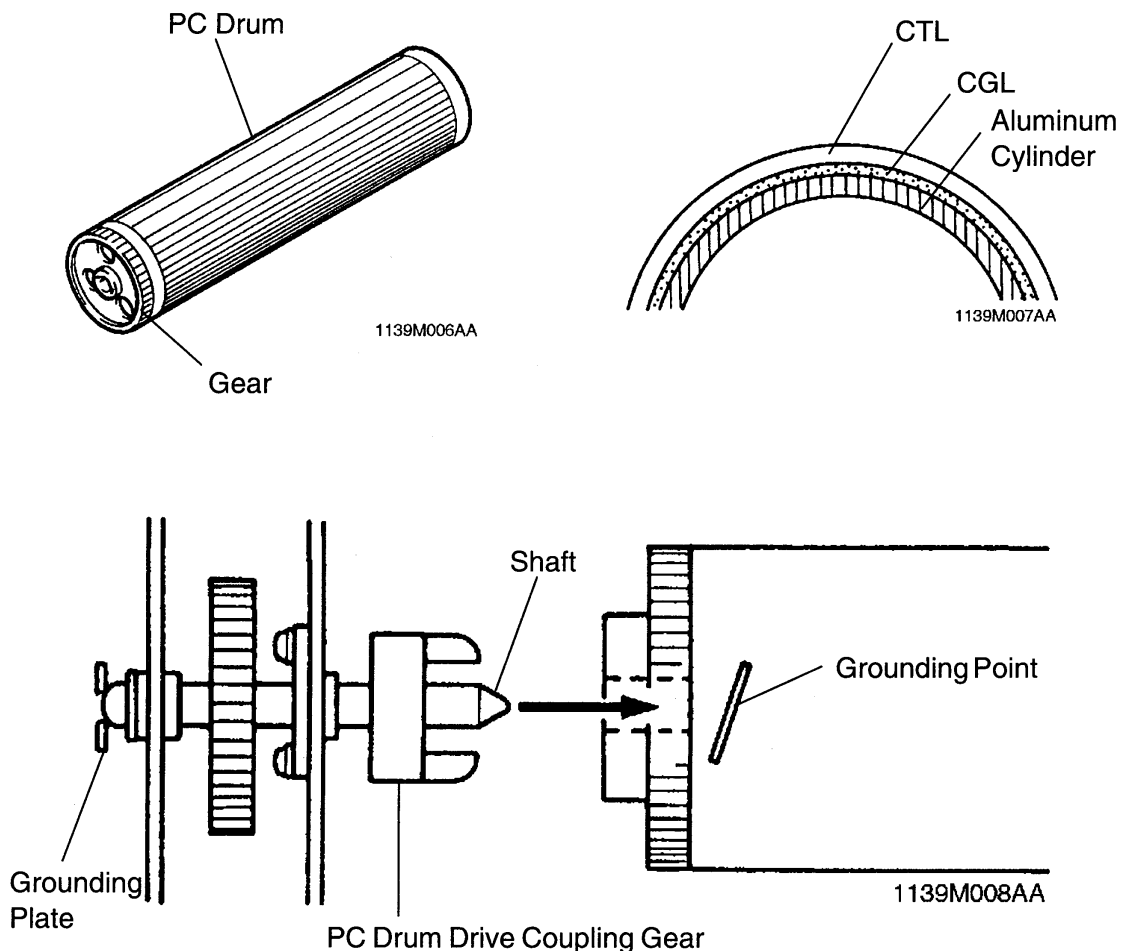
The photoconductive drum used in this copier is the organic photoconductor (OPC) type. The drum is made up of two distinct, semiconductive materials on an aluminum alloy base. The outer of the two layers is called the Charge Transport Layer (CTL), while the inner layer is called the Charge Generating Layer (CGL).

The PC Drum has its grounding point inside at its rear end. When the Imaging Unit is installed in the copier, the shaft on which the PC Drum Drive Coupling Gear is mounted contacts this grounding point.

### Handling Precautions

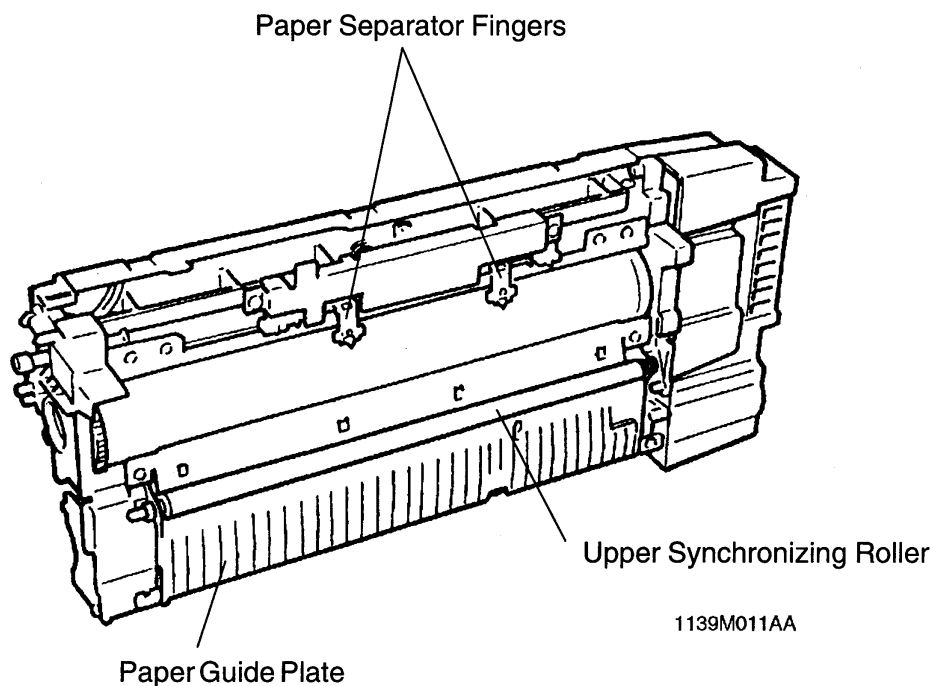
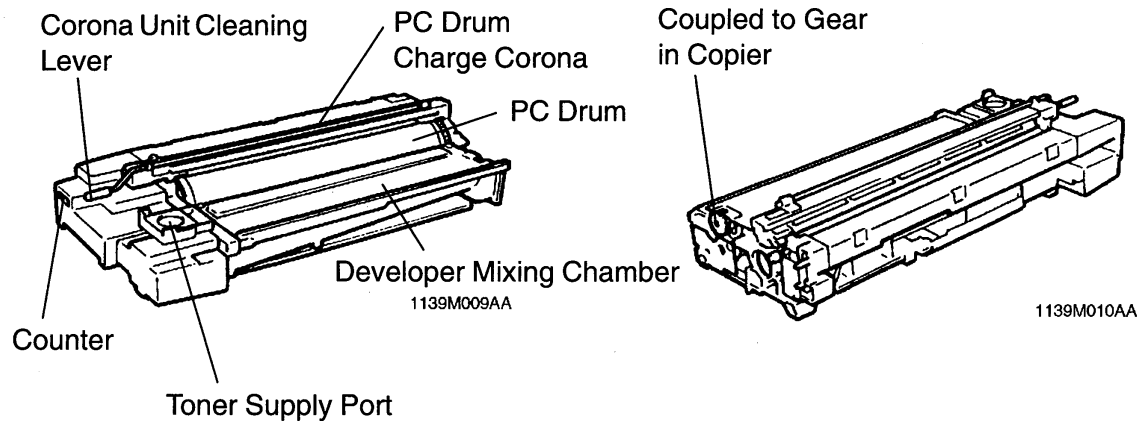
This photoconductor exhibits greatest light fatigue after being exposed to light over an extended period of time. It must therefore be protected from light by a clean, soft cloth whenever the Imaging Unit has been removed from the copier. Further, use utmost care when handling the PC Drum to prevent it from being contaminated.

PC Drum Cross-Sectional View



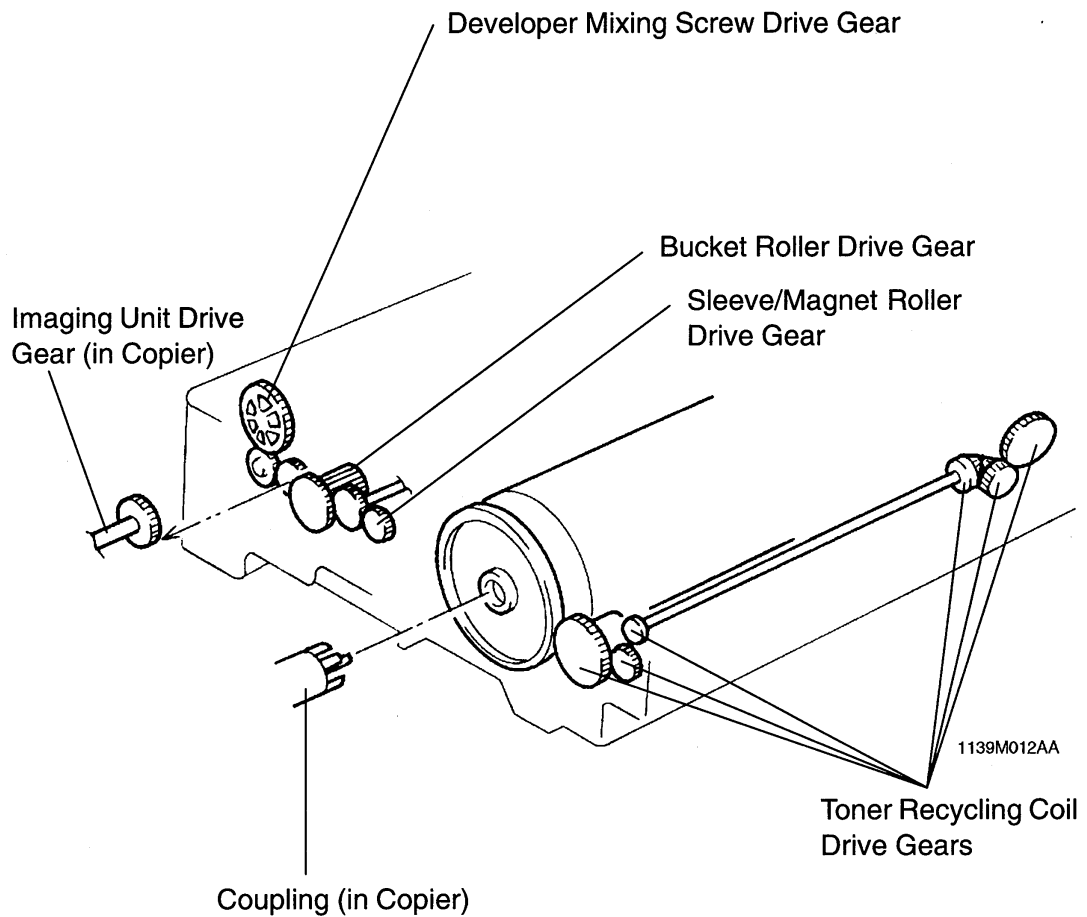
## 6 IMAGING UNIT

This copier is equipped with an Imaging Unit, or IU, which integrates a PC Drum, PC Drum Charge Corona, Developing Unit, Cleaning Unit, and Toner Recycling mechanism into one assembly. The Unit also includes the Upper Synchronizing Roller which facilitates clearing of a paper misfeed.



## 6-1. Imaging Unit Drive

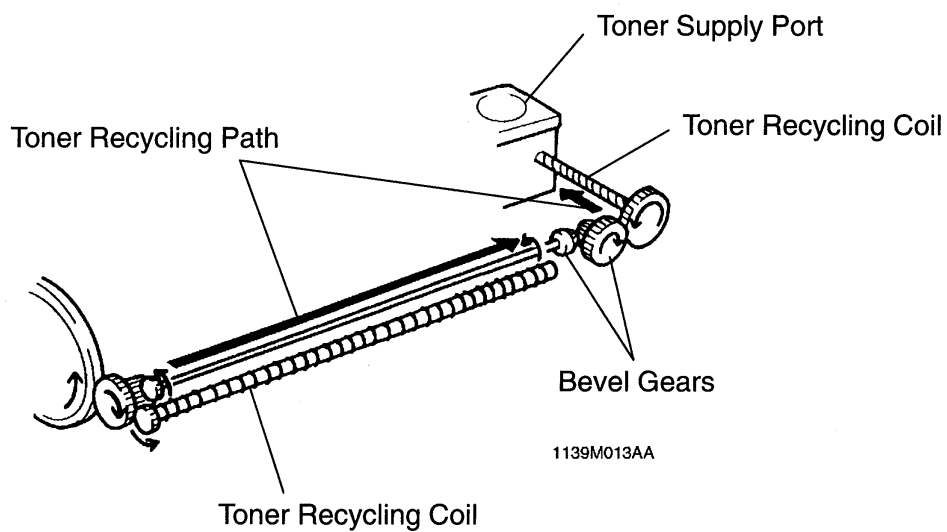
Drive for the Imaging Unit is transmitted by one of the gears on the Unit. This particular gear is in mesh with the Imaging Unit Drive Gear in the copier.



## 6-2. Toner Recycling

The copier is provided with a toner recycling mechanism. The toner, which has been scraped off the surface of the PC Drum by the Cleaning Blade and collected in the Cleaning Unit, is conveyed by the two Toner Recycling Coils to the Toner Supply Port and, from there, it is returned back to the Developer Mixing Chamber of the Developing Unit.

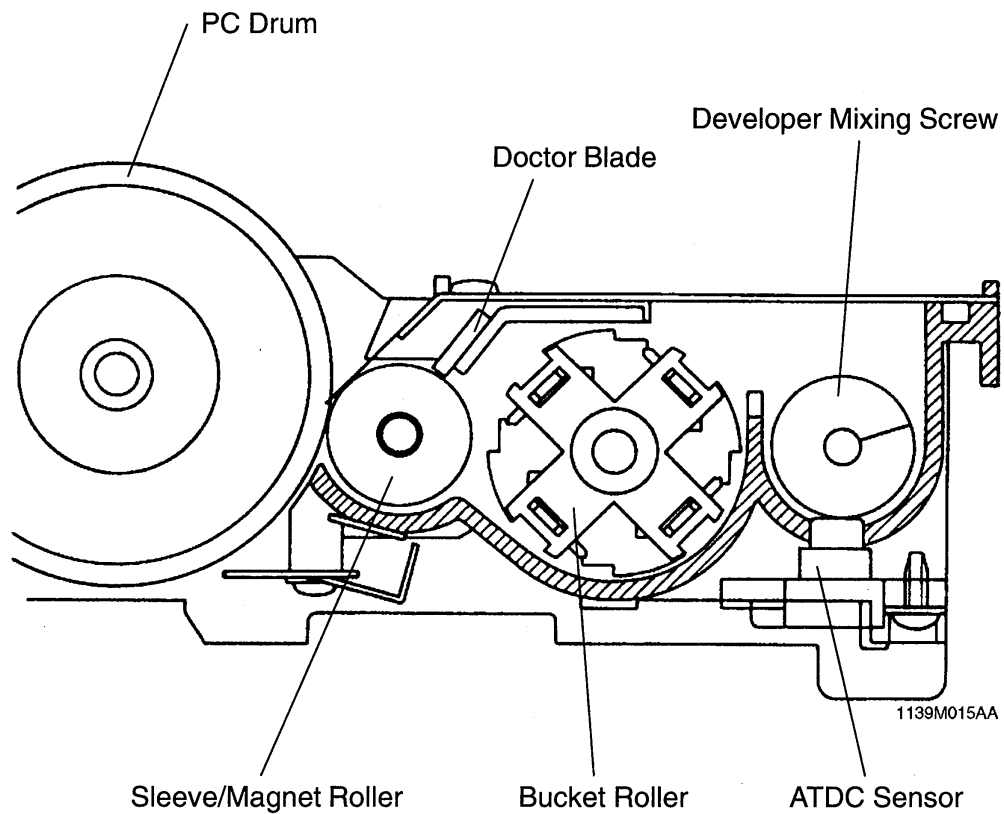
One of the gears of the Toner Recycling mechanism receives drive through a gear at the rear end of the PC Drum.



## 7 DEVELOPMENT

The Developing Unit built into the Imaging Unit performs the following functions:

- Mixes the toner and carrier well to ensure that a sufficient amount of toner is positively charged.
- Detects the toner-to-carrier ratio of the developer by means of the ATDC Sensor and replenishes the supply of toner as necessary.
- Detects a toner empty condition by means of the ATDC Sensor.
- Ensures that a proper amount of toner is attracted to the PC Drum by means of its Sleeve/Magnet Roller, Developing Bias, and Doctor Blade.





## 7-1. ATDC Sensor

ATDC Sensor UN3 installed on the underside of the Developer Mixing Chamber detects the varying toner-to-carrier ratio of the developer which flows over it in the Chamber. The copier CPU compares the detected ratio with the ratio set by the ATDC Detection Level Mode (Tech. Rep. Choice SCH-90) to control toner replenishment.

Set T/C (%)	ATDC Output Voltage (V)
4.0	2.692
4.5	2.596
5.0	2.5 (Standard)
5.5	2.404
6.0	2.308
6.5	2.212
7.0	2.116

Toner is replenished for 5 seconds (the Toner Bottle is turned one turn, which is equivalent to a run of 2 copy cycles) for each Toner Replenishing signal.

If the toner-to-carrier ratio becomes lower than 2.5%, the copier inhibits the initiation of a new copy cycle (this feature can be enabled or disabled by a Tech. Rep. Choice mode). When a ratio of 3% or more is recovered as a result of Auxiliary Toner Replenishing, the copier permits the initiation of a new copy cycle.

If the Front Door is swung open and closed with a T/C ratio of less than 3%, the copier initiates an Auxiliary Toner Replenishing sequence. (It stops the sequence as soon as a T/C ratio of 3.5% is reached.)

### ATDC Sensor Automatic Adjustment

An automatic adjustment of the ATDC Sensor is made in the F8 Test Mode operation.

#### **\*When F8 is Run after Starter Has Been Changed:**

Following the execution of the starter setup mode upon pressing of the Start Key, the copier CPU reads the output value of the ATDC Sensor and establishes the reading as the reference value.

**NOTE:** *If an F8 operation is run at a time when the starter has not been changed, it can result in a wrong T/C reference value being set by the copier. Avoid casual use of F8.*

*If the setting value has been cleared because of the RAM Board being replaced, however, enter the ATDC control value before the replacement using the Zoom Up/Down Keys in the F8 operation (without pressing the Start Key).*

---

### Toner Empty Detection

The copier has no toner empty detecting sensor and, instead, the ATDC Sensor performs that function. The ATDC Sensor checks the toner-to-carrier ratio and, if it reads a T/C ratio lower than the set level for 37 copies and, further, if it next reads a ratio 1% lower than the setting, this is a toner-empty condition. The toner-empty condition is canceled after detection under any of the following conditions when the Front Door is swung open and closed:

- T/C is 3% or more: The toner-empty condition is canceled.
- T/C is less than 3%: The copier initiates an Auxiliary Toner Replenishing sequence and cancels the toner-empty condition as soon as T/C reaches 3.5%.

In addition, if the Tech. Rep. Choice setting has been made to inhibit the initiation of a new copy cycle in a toner-empty condition, the copier permits the initiation of a new copy cycle as soon as T/C reaches 3.0%.

	Control Signal	Set T/C	Standard Output Voltage	WIRING DIAGRAM
UN3	PWB-A PJ1A-3	4.0%	2.692	30-B
		4.5%	2.596	
		5.0%	2.5	
		5.5%	2.404	
		6.0%	2.308	
		6.5%	2.212	
		7.0%	2.116	

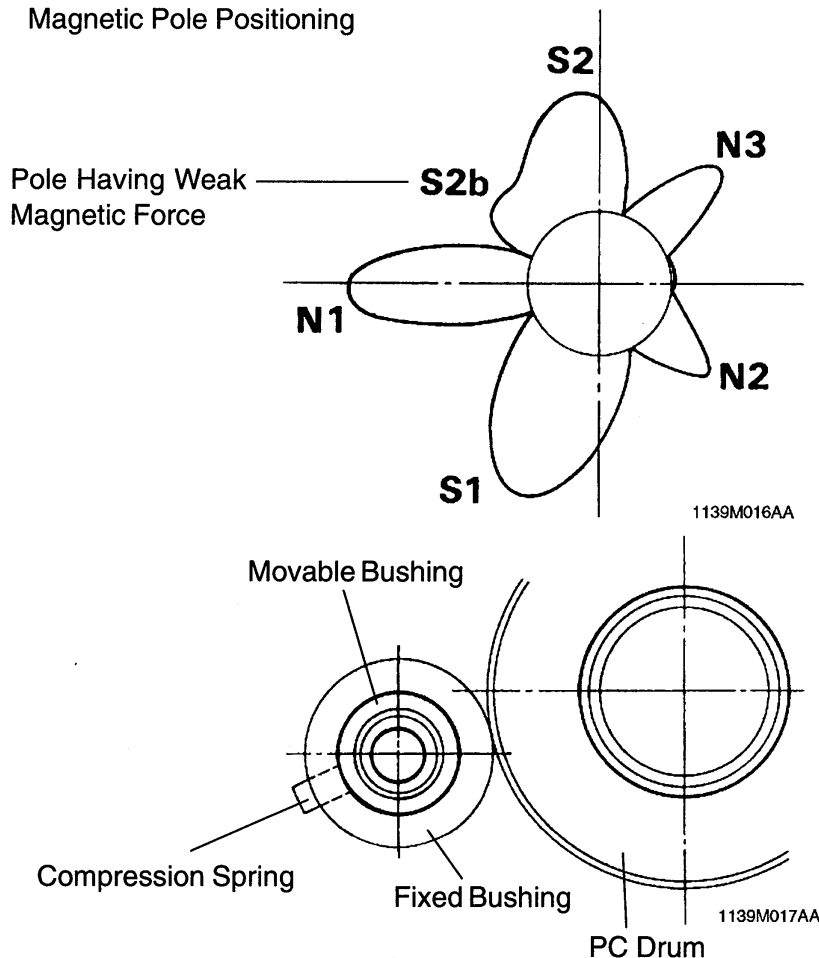
## 7-2. Magnet Roller

The Magnet Roller of the Sleeve/Magnet Roller of this copier has the following magnetic characteristics. Part of pole S2 before the principal N1 pole (i.e., the area marked as S2b in the Fig. below) provides a very weak magnetic force. If developer is compacted and clogs at the Doctor Blade and, as a result, part of the surface of the Sleeve/Magnet Roller is not covered with developer, the nearby developer around S2b goes to those uncovered areas because of its weak magnetic force. This helps prevent blank lines from occurring on the copy.

The Sleeve Roller, onto which developer is attracted by the magnetic fields of force set up by the poles of the Magnet Roller, turns to convey the developer toward the point of development. It also means that the developer fresh from the Developer Mixing Chamber is always brought to the point of development.

As we noted earlier, the Imaging Unit integrates the Developing Unit with the PC Drum into one body. Because of that, it is impossible to move the Developing Unit against the PC Drum, thereby providing a certain distance between the PC Drum and Sleeve/Magnet Roller. The Magnet Roller has therefore been made movable: the Bushing is pressed by compression springs thereby pressing the Positioning Collars on both ends of the Magnet Roller against the PC Drum. This ensures a given distance between the PC Drum and the Sleeve/Magnet Roller.

Magnetic Pole Positioning

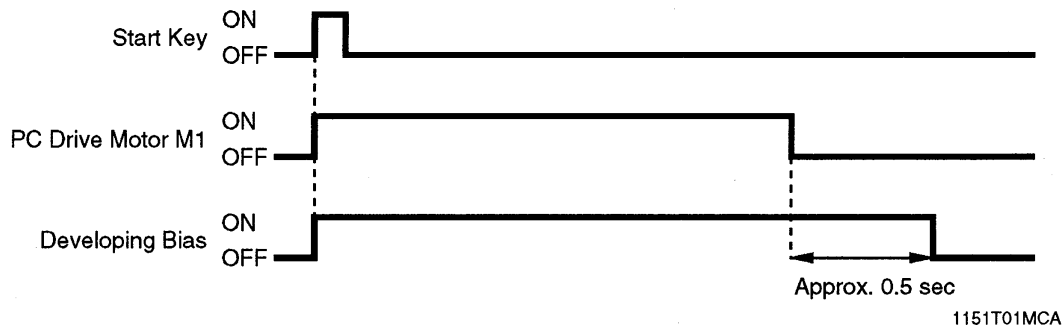
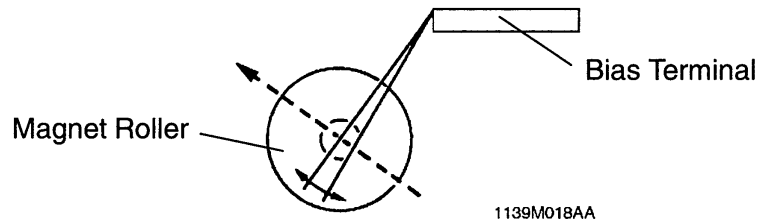


### 7-3. Developing Bias

A negative voltage ( $V_b$  = Developing Bias voltage) is applied to the Sleeve Roller to prevent a foggy background on the copy. The amount of toner attracted onto the surface of the PC Drum depends on how much lower the PC Drum surface potential ( $V_i$ ) is than  $V_b$  (i.e., the potential difference).

- When the potential difference is large, a greater amount of toner is attracted.
- When the potential difference is small, a smaller amount of toner is attracted.

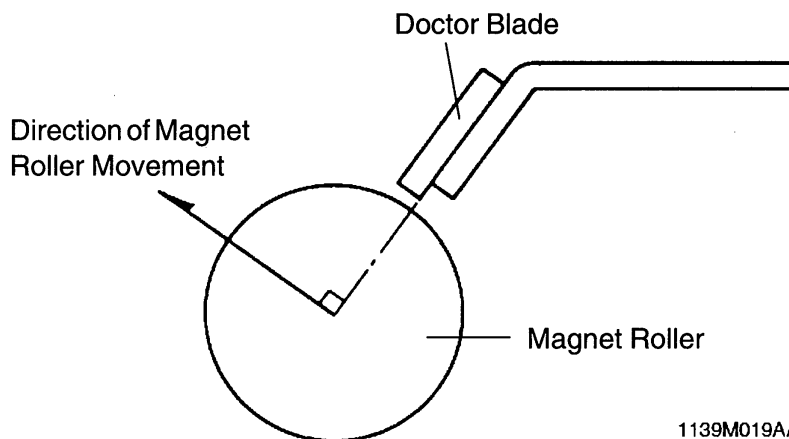
Because the Magnet Roller of this copier is movable, a flat spring is used as the Bias Terminal which follows the movement of the Magnet Roller.



	Control Signal	ON	OFF	WIRING DIAGRAM
Developing Bias	PWB-A PJ12A-4	L	H	30-A

#### 7-4. Doctor Blade

The Doctor Blade installed over the Sleeve/Magnet Roller regulates the height of the developer brush on the surface of the Sleeve Roller. The Blade is perpendicular to the direction of movement of the Magnet Roller to minimize variations in the distance between the Doctor Blade and Magnet Roller as the Magnet Roller moves.

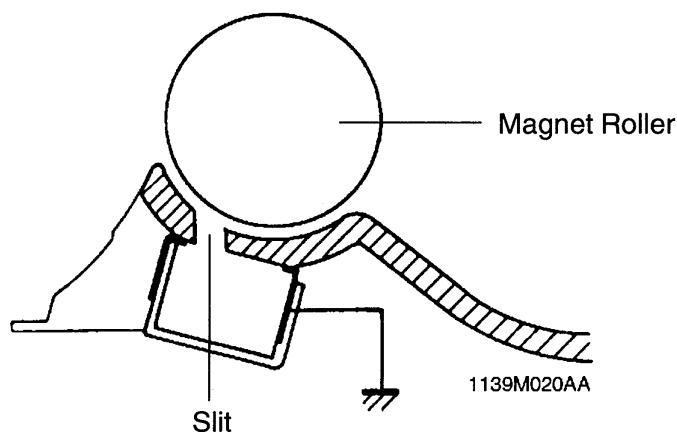


1139M019AA

#### 7-5. Magnet Roller Lower Filter

\*Except the U.S.A., Canada, and Europe

There is a slit provided under the Magnet Roller to collect insufficiently charged toner in the grounded Toner Antispill Receiver. This effectively prevents the toner from spilling onto the mechanisms inside the copier.



1139M020AA

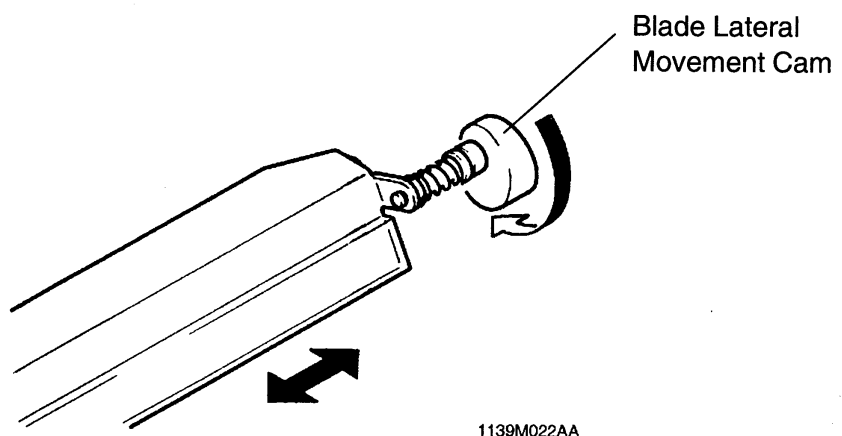
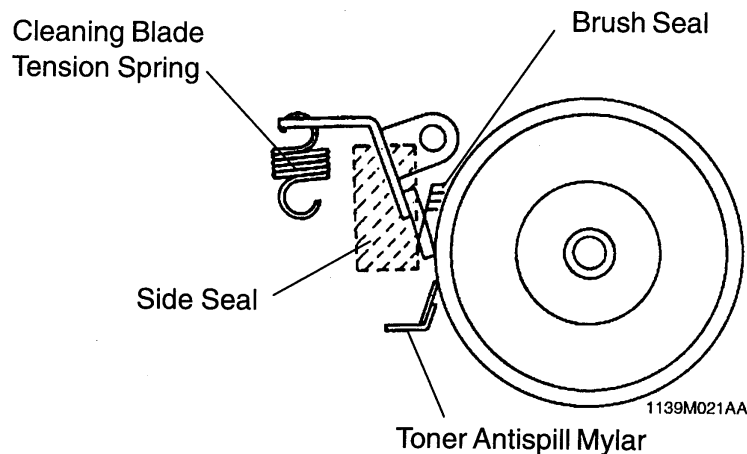
## 8 CLEANING UNIT

The Cleaning Blade is pressed tightly against the surface of the PC Drum and scrapes off any toner remaining on the surface after image transfer and paper separation have been completed.

The Cleaning Blade is moved back and forth to prevent the PC Drum from deteriorating and the Cleaning Blade from warping away from the surface of the PC Drum.

There is a Toner Antispill Mylar affixed to the Imaging Unit. It prevents toner scraped off the surface of the PC Drum from falling down onto the surface of the copy paper or the paper path.

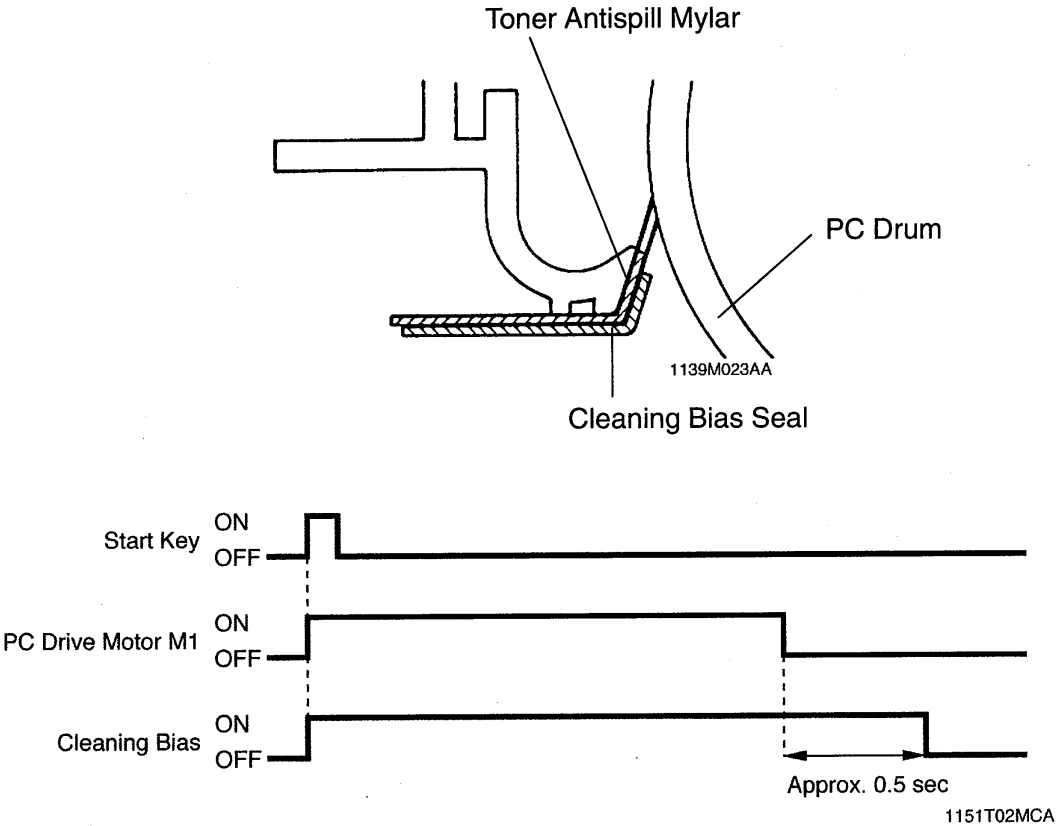
In addition, a Side Seal and Brush Seal are affixed to both ends of the Imaging Unit on both sides of the Cleaning Blade. They prevent toner from spilling from both ends of the Cleaning Blade.



8-1. Cleaning Bias

\*Except the U.S.A., Canada, and Europe

There is a Cleaning Bias Seal installed to minimize damage to the PC Drum from acid paper.



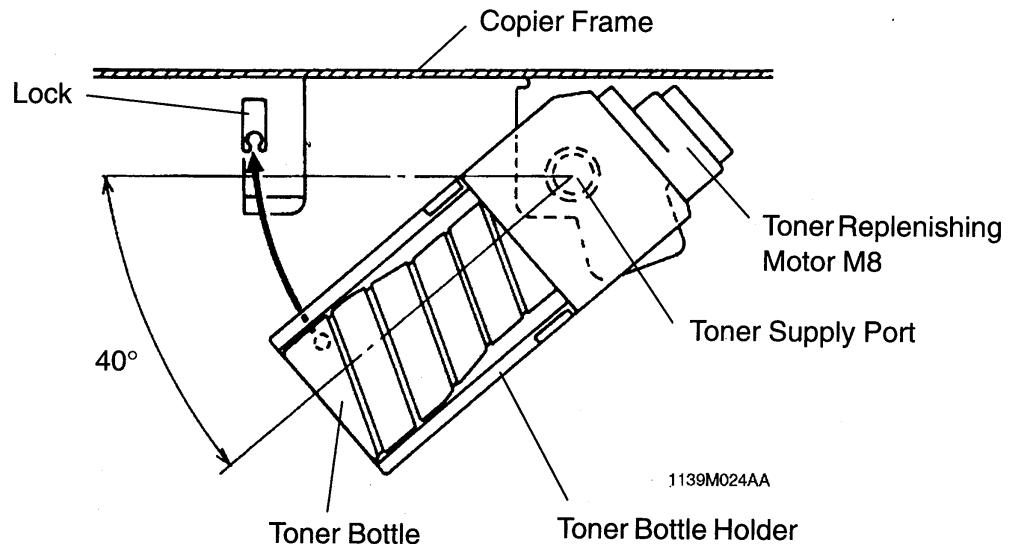
	Control Signal	ON	OFF	WIRING DIAGRAM
Cleaning Bias	PWB-A PJ12A-4	L	H	31-B

## 9 TONER HOPPER

1139SBM0901A

### 9-1. Toner Hopper Locking/Unlocking

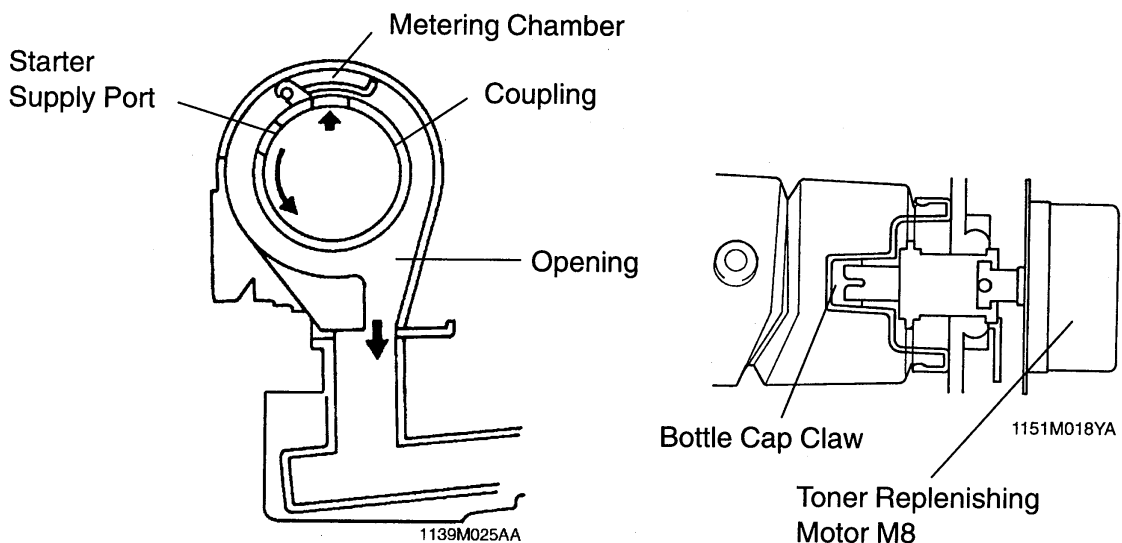
The Toner Hopper is not integrated into the Imaging Unit; instead, it is secured to the copier. To replace an empty Toner Bottle, the user first needs to swing the Toner Bottle Holder out 40° to the front. The Holder pivots about the Toner Supply Port as it is swung out or in, which effectively prevents toner from spilling when the Holder is swung out or in.



1151SBM0902A

### 9-2. Toner Replenishing

- Drive from Toner Replenishing Motor M8 is transmitted via the motor shaft to the Bottle Cap Claw, which turns the Toner Bottle. As the Toner Bottle is fitted to the Coupling, both turn together during toner replenishing.
- There is a Metering Chamber provided at the toner supply port of the Coupling. It functions to regulate the amount of toner that falls through the port.
- There is a supply port for the exclusive use of the starter. The starter does not pass through the Metering Chamber, which means that it takes a shorter time to charge the starter.

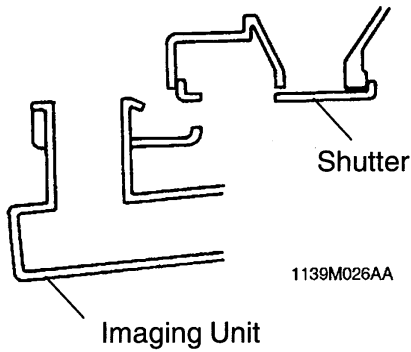




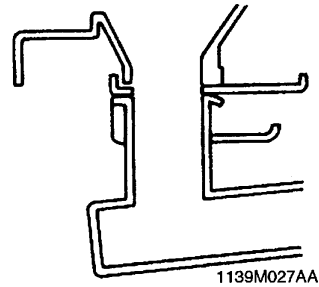
### 9-3. Shutter

The connection between the Toner Hopper and Imaging Unit is provided with a Shutter which prevents toner from spilling when the Imaging Unit is slid out of the copier.

Imaging Unit Out of Copier

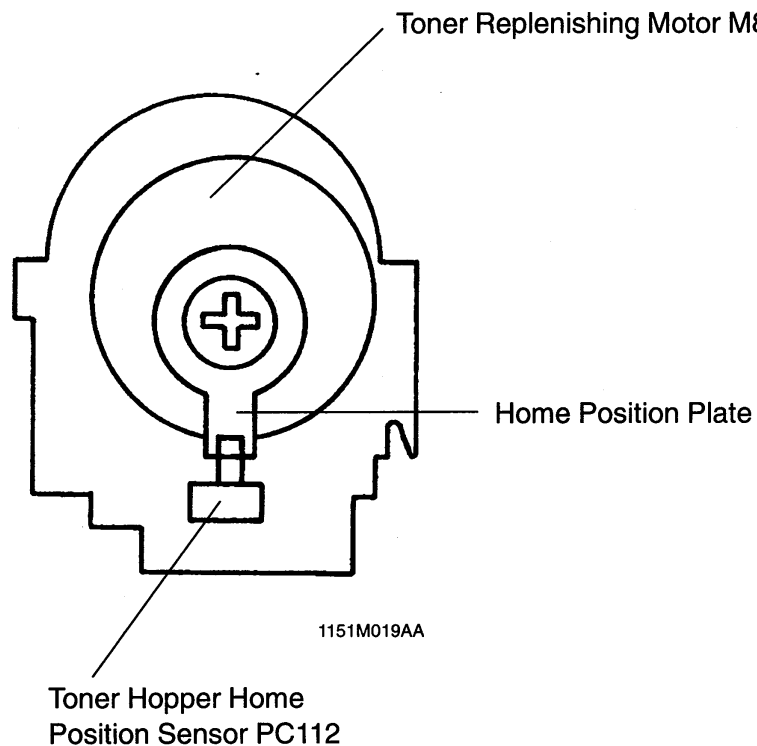


Imaging Unit in Position in Copier



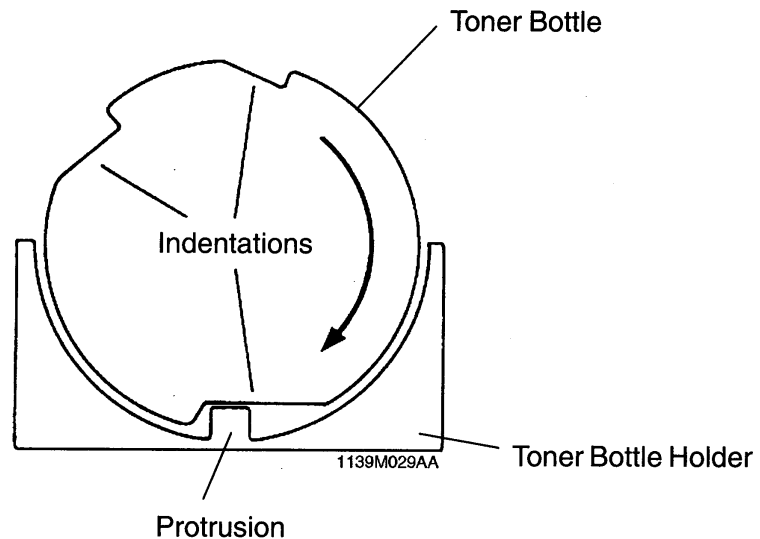
### 9-4. Toner Hopper Home Position Detection

Coupling is fitted with a Home Position Plate which is detected by Toner Hopper Home Position Sensor PC112. This ensures that the Toner Bottle is located so that its opening is positioned on top whenever M8 is deenergized.



### 9-5. Toner Bottle Vibration

When the indentations at three places on the left-hand side (as viewed when the Toner Bottle is in position) of the Toner Bottle move past the protrusion in the Toner Bottle Holder, the Toner Bottle is vibrated to prevent some of the toner from remaining unconsumed in the Bottle.



## 9-6. Toner Replenishing Control

1. The ATDC Sensor installed in the Imaging Unit reads the toner-to-carrier ratio of the developer in the Developer Mixing Chamber for each copy cycle.
2. It samples the ratio 16 times and compares each with the preset level.
3. If eight or more readings out of the total 16 are lower than the preset level, a Toner Replenishing signal is output.
4. Toner Replenishing Motor M8 is turned one complete turn for each Toner Replenishing signal (which is equivalent to a supply of 0.45 g toner).

\*The readings taken while M8 is turning (it takes 5 seconds for M8 to turn one complete turn) are ignored. This means that, in a multi-copy cycle, the ATDC Sensor may take readings as the next copy cycle is started while M8 is turning; but, those readings are ignored.

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M8	PWB-A PJ6A-5	H	L	30-E

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC112	PWB-A PJ22A-10	L	H	30-E

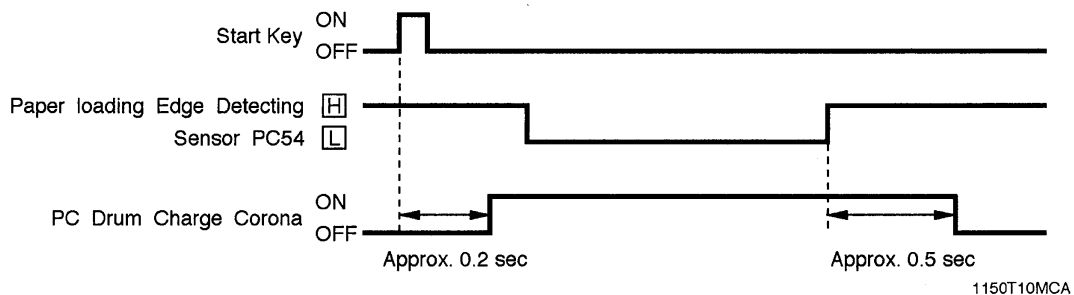
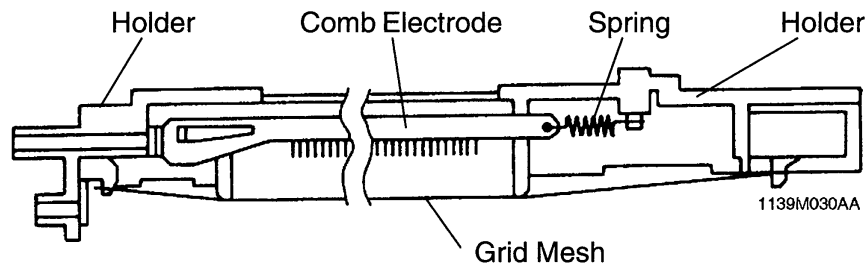
	Control Signal	Set T/C	Reference Voltage	WIRING DIAGRAM
UN3	PWB-A PJ1A-3	4.0%	2.692	30-B
		4.5%	2.596	
		5.0%	2.5	
		5.5%	2.404	
		6.0%	2.308	
		6.5%	2.212	
		7.0%	2.116	

## 10 DRUM CHARGING

The PC Drum Charge Corona has a Scorotron grid to deposit a negative DC charge evenly across the surface of the PC Drum. The grid voltage (VG) applied to the grid mesh is selected between -650V in the normal mode and -520V in the Photo mode by the Constant-Voltage Circuit in High Voltage Unit HV1.

The Corona Unit has a Comb Electrode which minimizes the amount of ozone produced. The conventional wire type corona unit produces a large amount of ozone due to corona discharge in radial directions. The comb electrode type, on the other hand, discharges only toward the Grid Mesh, meaning a reduced amount of ozone is produced.

The Comb Electrode can be cleaned by the user who pulls out to the front the shaft on which a Cleaning Rollar is mounted.



	Control Signal	ON	OFF	WIRING DIAGRAM
PC Drum Charge Corona	PWB-A PJ12A-5	L	H	7-D

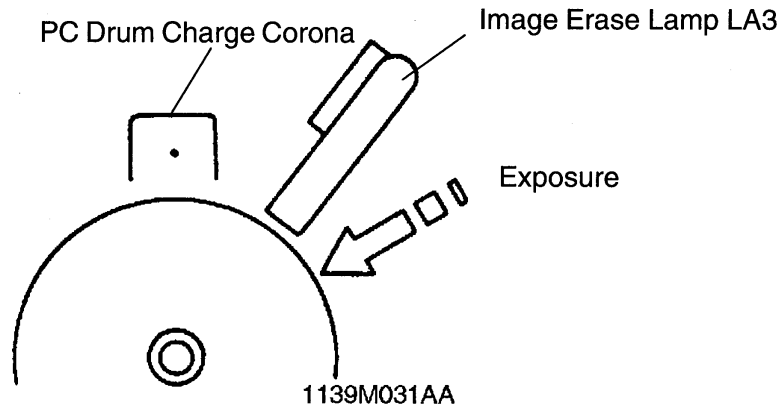
  

	Control Signal	Normal Mode	Photo Mode	WIRING DIAGRAM
Grid Voltage (VG)	PWB-A PJ12A-6	Pulse Output		7-D

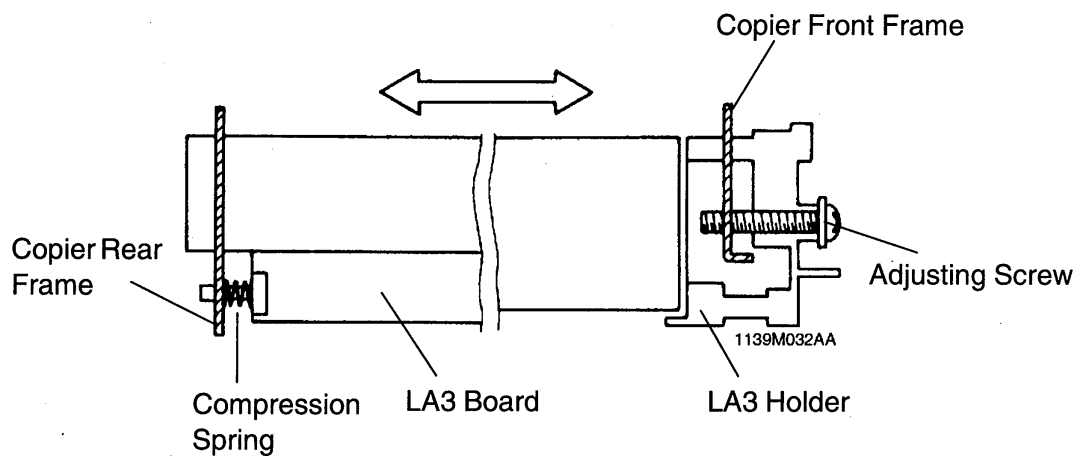
## 11 IMAGE ERASE LAMP

To prevent a black band from occurring across both the leading and trailing edges, and along the front and rear edges, of the electrostatic latent image, 38 LEDs of Image Erase Lamp LA3 are turned ON before development takes place, thereby reducing to a minimum the unnecessary potential on the surface of the PC Drum.

Because of the light path involved, this copier has this edge erasing cycle between drum charging and exposure.



The position of LA3 can be adjusted using the adjusting screw at the front of the copier.



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The 38 LEDs are grouped as follows and turned ON and OFF according to the paper size and zoom ratio.

LED Group No.	LED No.	LED Group No.	LED No.
01	LED1	17	LED 23
02	LED 2	18	LED 24
03	LED 3 to 5	19	LED 25
04	LED 6 to 8	20	LED 26
05	LED 9 to 11	21	LED 27
06	LED 12	22	LED 28
07	LED 13	23	LED 29
08	LED 14	24	LED 30
09	LED 15	25	LED 31
10	LED 16	26	LED 32
11	LED 17	27	LED 33
12	LED 18	28	LED 34
13	LED 19	29	LED 35
14	LED 20	30	LED 36
15	LED 21	31	LED 37
16	LED 22	32	LED 38

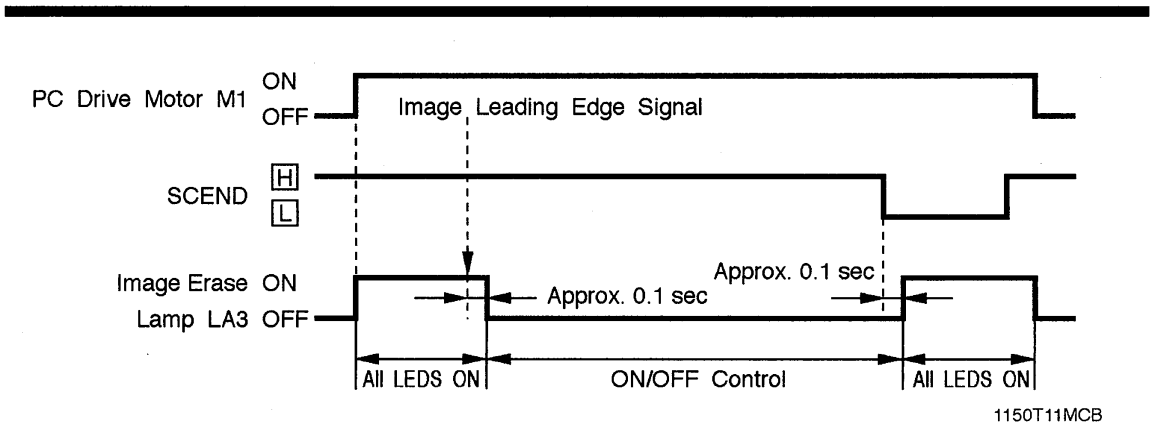
\*The smaller the number, the nearer the LED is to the front side of the copier.

- Image Erase Lamp LEDs ON/OFF Pattern (Control is provided to turn ON more LEDs when the ON/OFF pattern varies between a zoom ratio and paper width.)

Zoom Ratio	Paper Width (mm)	LED Group No.																																
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
—	to 94	○	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
—	95 to 106	○	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
—	107 to 117	○	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
—	118 to 128	○	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
—	129 to 137	○	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.500 to 0.519	138 to 146	○	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.520 to 0.545	147 to 156	○	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.546 to 0.567	157 to 164	○	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.568 to 0.587	165 to 171	○	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.588 to 0.607	172 to 177	○	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.608 to 0.633	178 to 183	○	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.634 to 0.659	184 to 191	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.660 to 0.679	192 to 199	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.680 to 0.703	200 to 205	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.704 to 0.725	206 to 212	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.726 to 0.749	213 to 219	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○	○
0.750 to 0.769	220 to 226	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○
0.770 to 0.791	227 to 232	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○
0.792 to 0.814	233 to 239	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○
0.815 to 0.837	240 to 246	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○
0.838 to 0.861	247 to 253	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○
0.862 to 0.887	254 to 260	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○	○
0.888 to 0.919	261 to 268	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○	○
0.920 to 0.947	269 to 277	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○	○
0.948 to 0.967	278 to 286	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○	○
0.968 to 0.989	287 to 292	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○	○
0.990 to 2.000	293 to	○	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○	○

○:ON; —:OFF

\*The max. width (293 mm or more) applies to manual bypass copying in which the copier is unable to detect paper width.



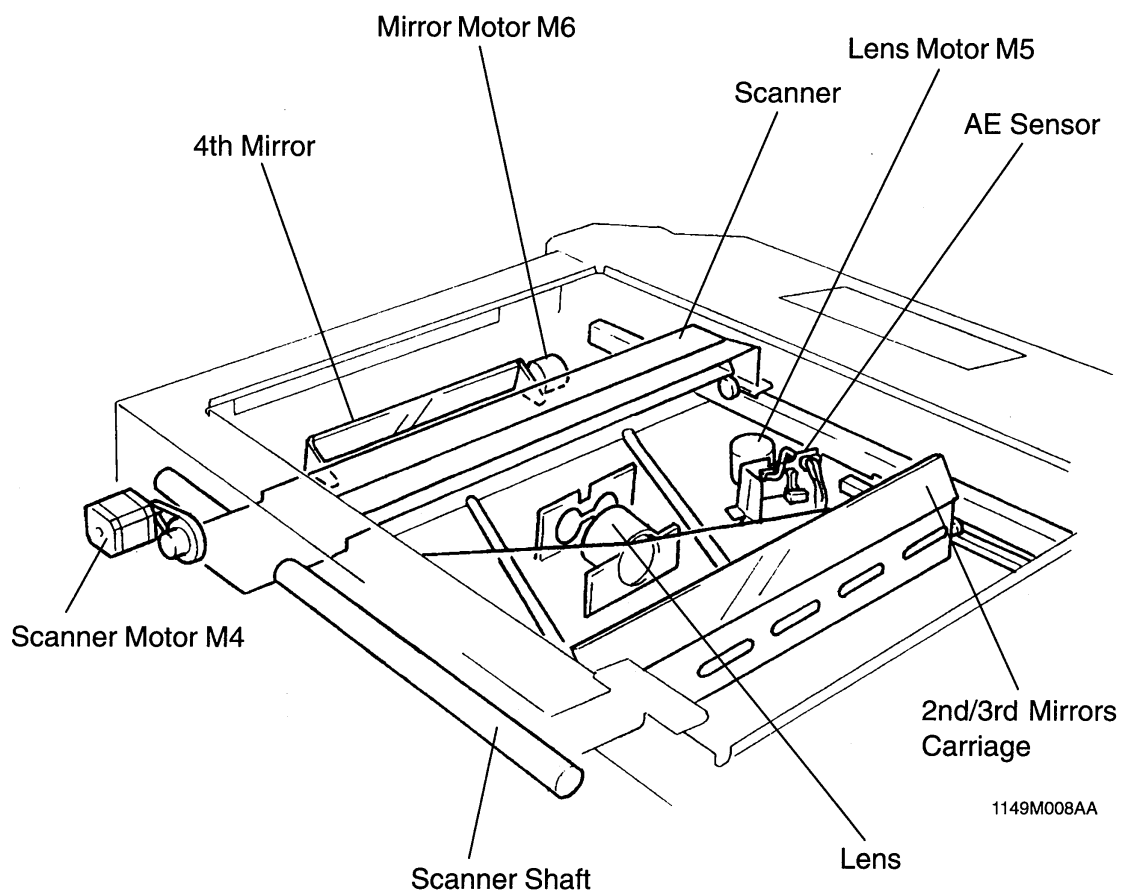
	Control Signal	ON	OFF	WIRING DIAGRAM
LA3	PWB-A PJ17A-4 ~ 14	Dynamic ON/OFF Control		2-F



## 12 OPTICAL SECTION

As the Scanner is moved by Scanner Motor M5, the light from Exposure Lamp LA1 is reflected off the original and guided through the four Mirrors onto the surface of the PC Drum to form the electrostatic latent image.

The image is enlarged or reduced as necessary by changing the position of the Lens and 4th Mirror and varying the angle of the 4th Mirror.



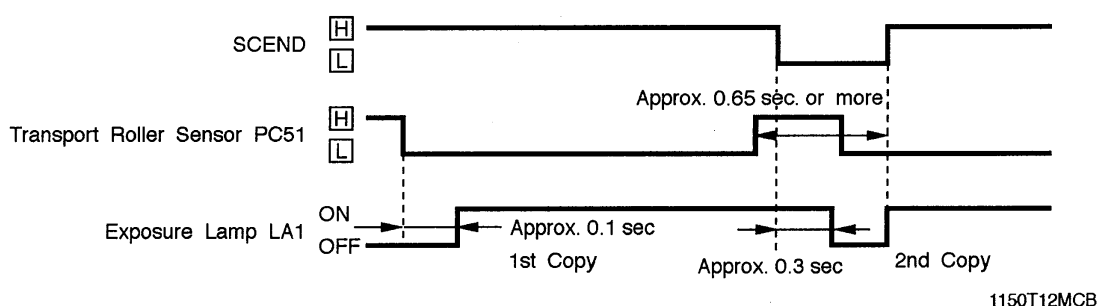
## 12-1. Exposure Lamp LA1

An AC halogen lamp is used as Exposure Lamp LA1.

As the exposure level is adjusted on the control panel, the duty ratio of the pulse of AVR Remote from PWB-A changes to increase or decrease the LA1 voltage, thereby changing the image density.

In Photo mode, the voltages are varied on a level 5V lower than the manual Exposure Lamp voltages.

Manual EXP Setting	9	8	7	6	5	4	3	2	1
Lamp Voltage Difference (V)	-8.4	-4.4	-2.4	-1.2	Reference	+1.2	+2.4	+4.4	+8.4



	Control Signal	ON	OFF	WIRING DIAGRAM
AVR Remote Signal (LA1)	PWB-A PJ12A-11	L	H	22-F, 22-H

\*If reduction copies are made using large size paper, the trailing edge of the first copy moves past PC51 after the SCEND signal for the second copy has been generated. If LA1 is turned ON for the second copy at the same timing as the first one, therefore, the image for the second copy is produced on the trailing edge of the first copy. To prevent this from occurring, LA1 is turned ON for the second and subsequent copies when all of the following conditions are met:

- Approx. 0.65 sec. or more have elapsed after the first copy deactivated PC51.
- The PC51 output is HIGH.
- The SCEND signal for the second copy is output.

## 12-2. AE Sensor

In the Auto Exposure Mode, the AE Sensor on AE Sensor Board PWB-H measures the intensity of the light reflected off the original, which results in the black/white ratio of a 210-mm-wide area from the reference position of the original being measured. According to this measurement, the Exposure Lamp voltage is automatically increased or decreased so that copies of consistent quality are produced.

The output from the AE Sensor is applied to PWB-A which, in turn, varies the duty ratio of the AVR Remote from it to vary accordingly the LA1 voltage.

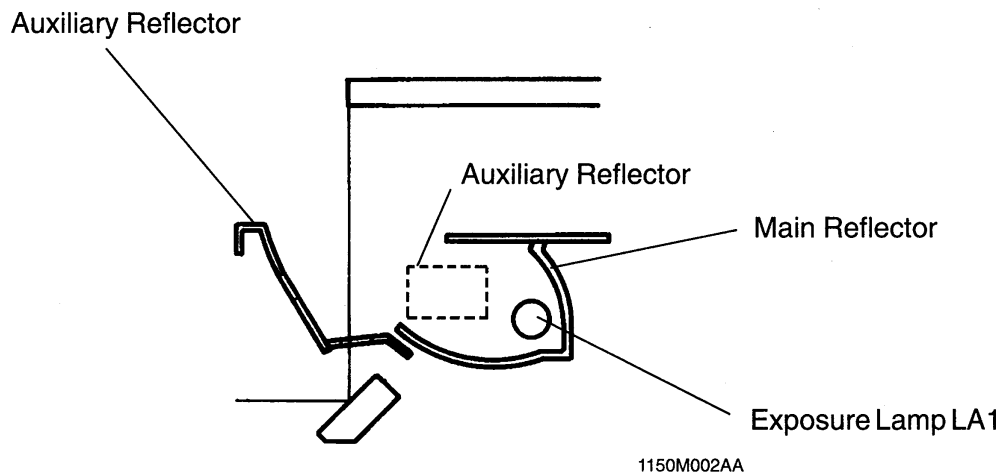
<b>Original Density (B/W Ratio)</b>	High	Low
<b>Intensity of Reflected Light</b>	Low	High
<b>PWB-H Output</b>	High	Low
<b>AVR Duty</b>	Increased	Decreased
<b>LA1 Voltage</b>	Increased	Decreased

	<b>Control Signal</b>	<b>ON</b>	<b>OFF</b>	<b>WIRING DIAGRAM</b>
PWB-H (AE Sensor)	PWB-A PJ2A-3	Pulse output		21-L
AVR Remote Signal (LA1)	PWB-A PJ12A-11	L	H	22-F, 22-H

### 12-3. Lamp Reflectors

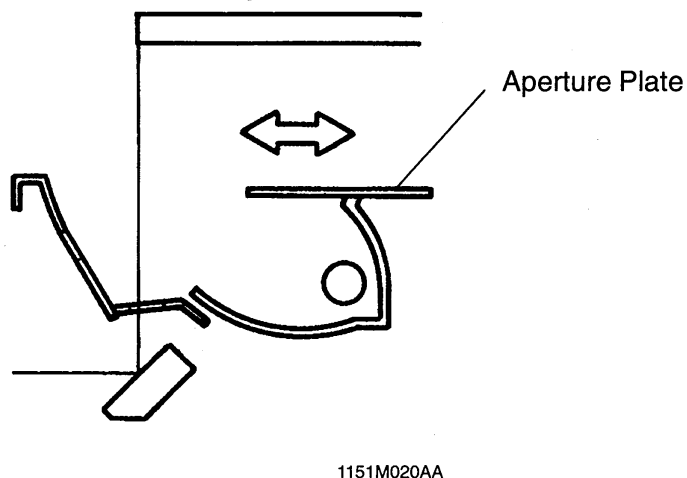
The Main Reflector ensures that light from Exposure Lamp LA1 exposes all areas of the original. The Auxiliary Reflector functions to reflect light onto the areas that LA1 cannot illuminate when an original that does not lie flat on the Original Glass (such as a book) is being used. This reduces shadows which would otherwise be transferred to the copy.

The Main Reflector is of aluminum, while the Auxiliary Reflector is aluminum to which film has been deposited. The same film as that used on the Auxiliary Reflector is affixed to both ends of the frame to compensate for the reduced intensity of light around both ends of the Exposure Lamp.



### 12-4. Aperture Plates

Four Aperture Plates are moved to the front and rear to ensure even light distribution.

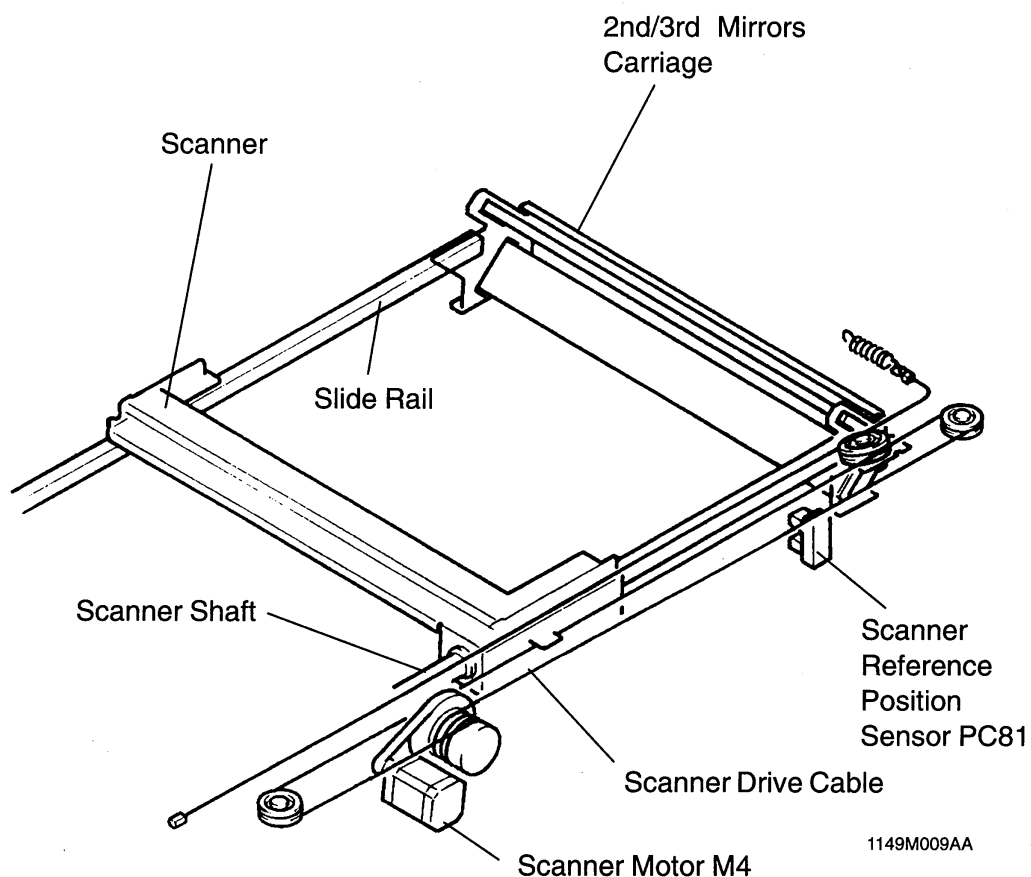


## 12-5. Scanner and 2nd/3rd Mirror Carriage Movement

The Scanner and 2nd/3rd Mirrors Carriage are moved by the Scanner Drive Cable fitted in the rear side of the copier. The Cable is driven by Scanner Motor M5.

Both the Scanner and 2nd/3rd Mirrors Carriage slide along the Scanner Shaft at the rear side. While at the front side, there is a Slide Bushing attached to the underside of each of the bodies and that Bushing slides over the Slide Rail. The speed of the Scanner and 2nd/3rd Mirrors Carriage varies with different zoom ratios.

Scanner Reference Position Sensor PC81 detects the home position of the Scanner and 2nd/3rd Mirrors Carriage. If they are not at the home position when the copier is turned ON, M5 is energized to move them to the home position.



The Scanner starts the scan motion as a Scan signal is output from PWB-A. At the start of a scan motion and other heavy load conditions, Scanner Motor M5 requires a large amount of current. The Current 1 or 2 signal from PWB-A is selected accordingly to vary the amount of current supplied to M5.

\*The Current signal selection timing is controlled by software.

<b>Current 1</b>	H	L	L
<b>Current 2</b>	H	H	L
	When the scan speed reaches a given level and during return braking.	At scan start and when the return speed reaches a given level.	At return start and at scan start for low zoom ratio

On receiving the Scan signal, Motor Drive Board PWB-E applies motor drive pulses, which are out-of-phase with each other, to M5. The motor speed is varied by changing the width of the pulses applied to M5.

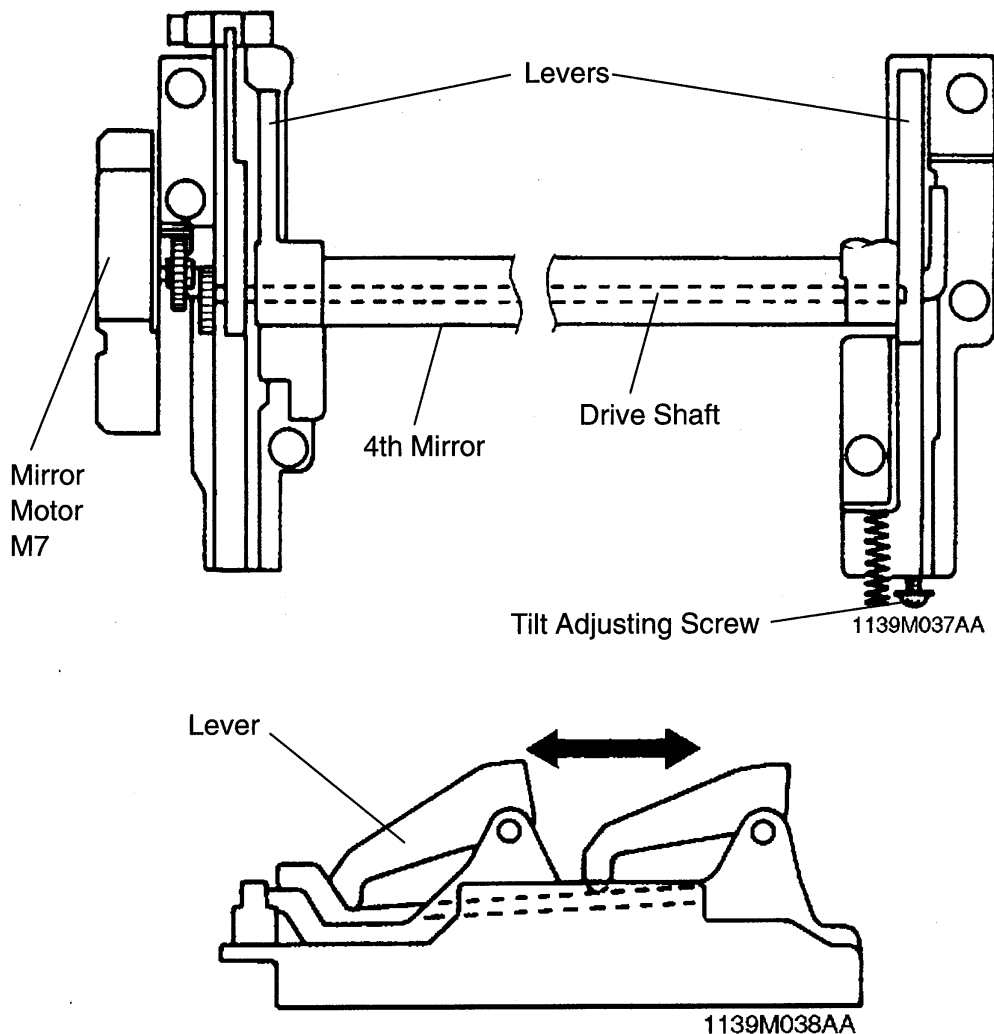
	<b>Control Signal</b>	<b>Energized</b>	<b>Deenergized</b>	<b>WIRING DIAGRAM</b>
M5 Scan Signal	PWB-A PJ16A-3	L	H	22-J
M5 Current Switching Signal 1	PWB-A PJ16A-10	L	H	
M5 Current Switching Signal 2	PWB-A PJ16A-11	L	H	

	<b>Control Signal</b>	<b>Blocked</b>	<b>Unblocked</b>	<b>WIRING DIAGRAM</b>
PC81	PWB-A PJ22A-1	L	H	20-N

## 12-6. 4th Mirror Movement

The 4th Mirror is moved to vary the conjugate distance for a particular zoom ratio by driving the rack-and-pinion gears at the front and rear ends of the mirror using Mirror Motor M7 (stepping motor). The Levers of the Holder to which the Mirror is mounted slides along a tilted rail to change the Mirror angle. This ensures that the light strikes the surface of the PC Drum in the direction of the normal, thereby preventing resolution from being degraded.

Mirror Reference Position Sensor PC81 is used to control the position of the 4th Mirror. It ensures that the Mirror is located at the home position when the copier is turned ON.



	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M7	PWB-A PJ16A-2	L	H	19-K

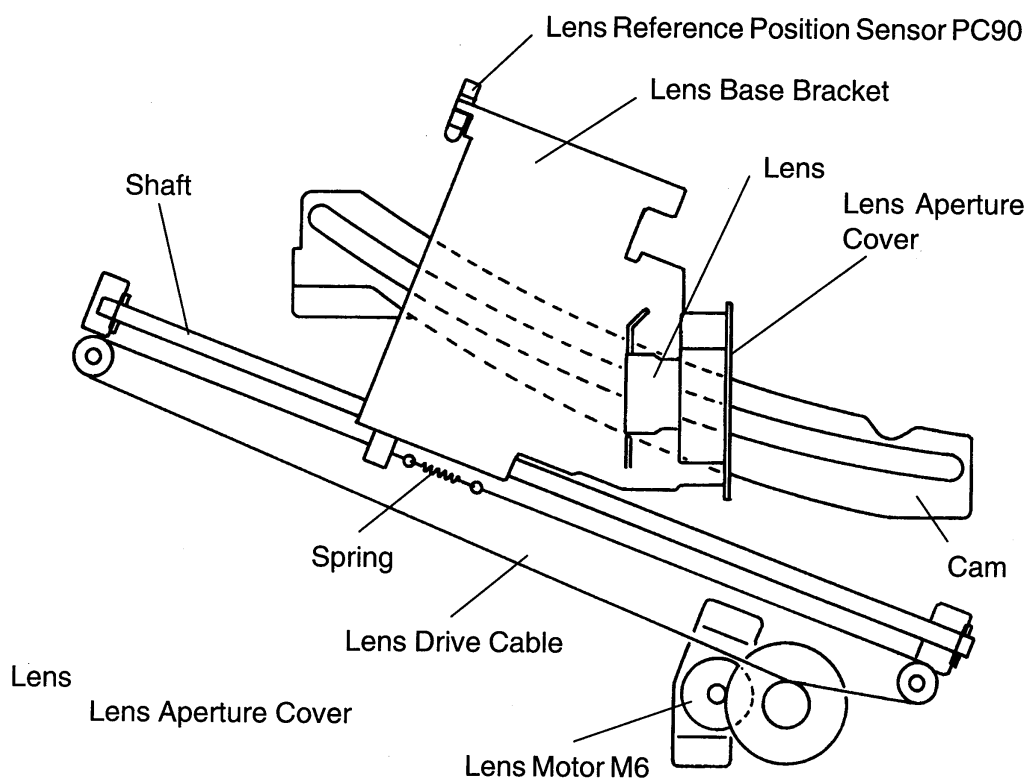
  

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC86	PWB-A PJ20A-2	L	H	20-M

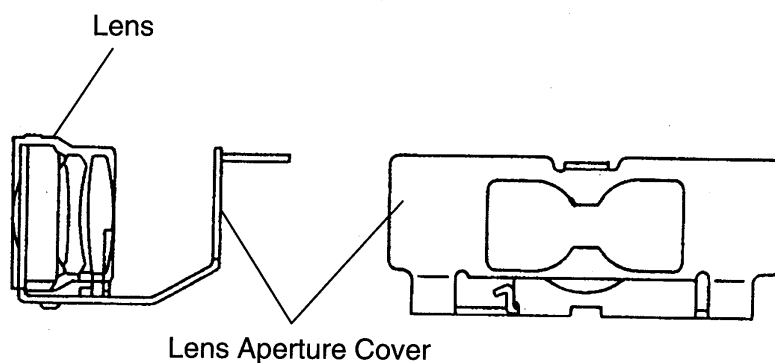
## 12-7. Lens Movement

The Lens is moved by the Lens Drive Cable which is driven by Lens Motor M6 (stepping motor). The motor drive pulses sent from PWB-E drive M6 to move the Lens a given distance, corresponding to the zoom ratio, from the reference position determined by Lens Reference Position Sensor PC90.

There is a fixed-type Lens Aperture Cover provided at the rear of the Lens (on the 4th Mirror end). It limits the amount of light striking the surface of the PC Drum.



1151M023AA



1149M010AA

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M6	PWB-A PJ16A-1	L	H	19-J

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC90	PWB-A PJ20A-5	L	H	20-M



## 13 ORIGINAL SIZE DETECTING SENSORS

1150SBM1301A

### 13-1. Original Size Detecting Sensors

The Original Size Detecting Sensors are mounted only in the copiers for the following marketing areas. The number and location of these sensors vary depending on the marketing area.

Area T: Taiwan

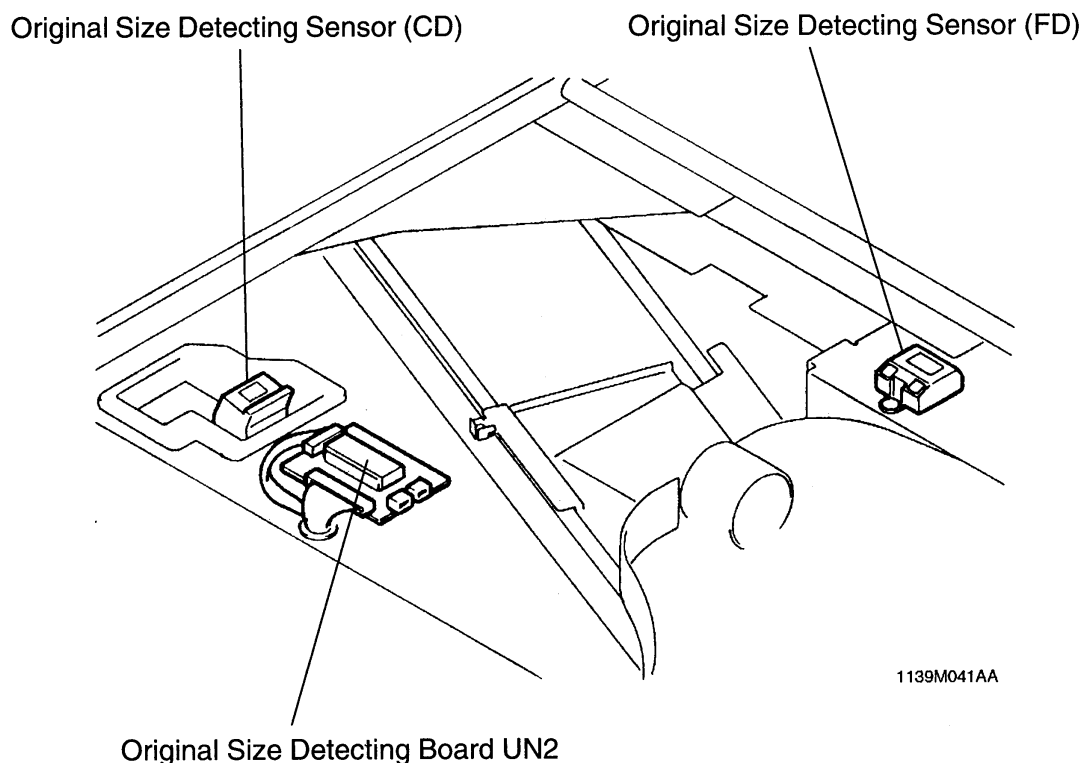
Area E: Europe, Curacao, Saudi Arabia (120-127V Area)

Area H: Hong Kong, Australia, New Zealand, South Africa, Singapore, Malaysia, Indonesia, Saudi Arabia (220-240V Area)

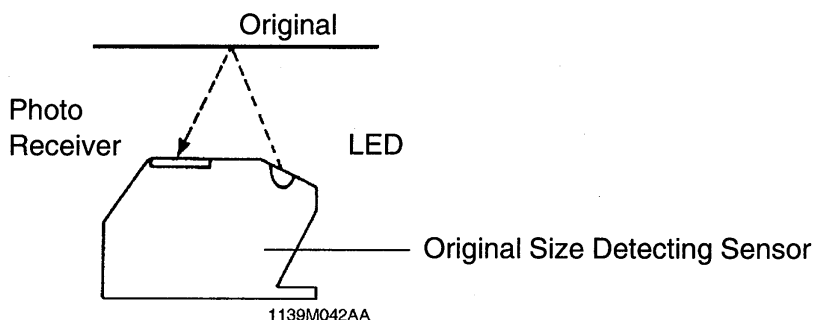
Area P: Philippines, Pakistan, Argentina, Peru, Mexico Central and South America, Colombia, Venezuela

The two (four only for area H) fixed sensors installed in the Optical Section receive the light reflected off the original to determine the size of the original in the Auto Paper and Auto Size Mode.

Image density of the original (OD) that can be detected is 0.6 or less (except for transparencies, translucent paper, and an original that does not lie flat).



Each sensor has two LEDs and one photo receiver. When the Original Cover is raised, the photo receiver detects light from the two LEDs reflected off the original to determine whether there is an original placed on the Original Glass. The combination in which the sensors are activated and deactivated determines the size of the original, as checked by Original Size Detecting Board UN2. The original size data is transmitted as 4-bit parallel data to PWB-A when the Start Key is pressed (Original Cover is raised) or Original Cover Detecting Sensor PC111 is activated (Cover angle less than 15°).

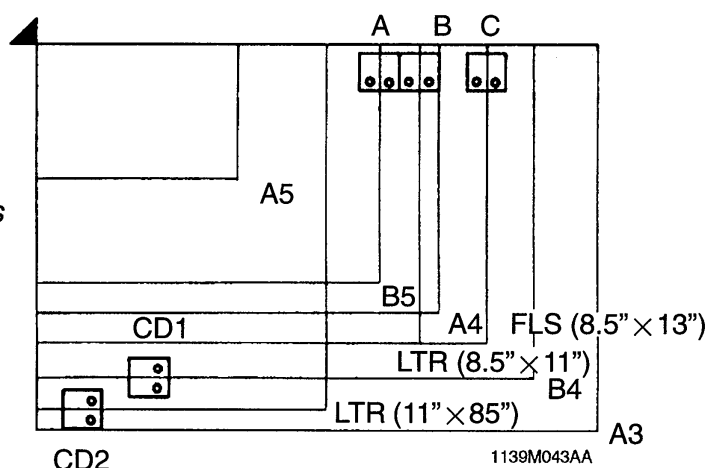


The number and location of the sensors vary depending on the marketing area as detailed below.

PC113 (FD2)  
 PC114 (CD1)  
 PC115 (FD3) \*Area H only  
 PC116 (CD2) \*Area H only

**NOTE:** Layout of FD Sensors

Area T: A (FD2)  
 Area E: B (FD2)  
 Area H: B (FD2) and C (FD3)  
 Area P: B (FD2)



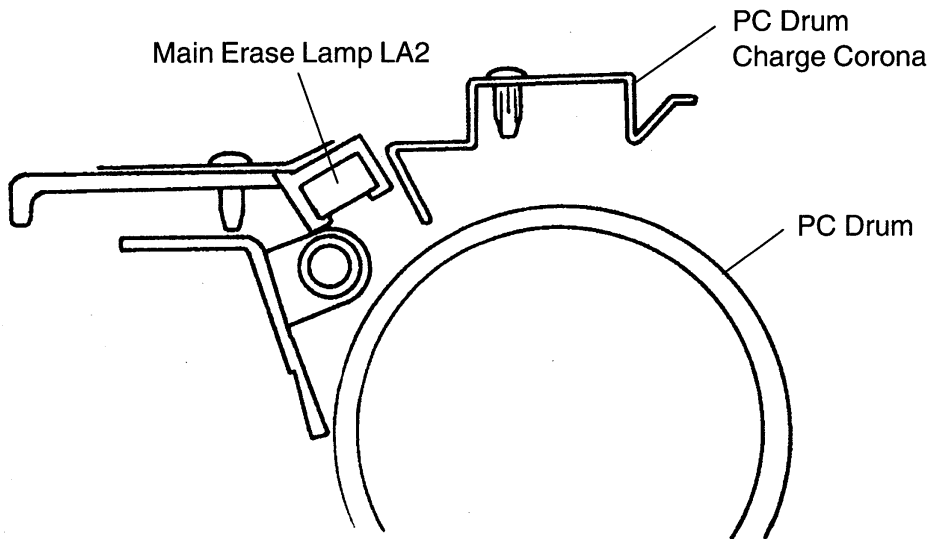
### Original Sizes That Can be Detected:

	Original Sizes Detection
Area T	A5L, B5L, B5C, A4L, A4C, B4L, A3L
Area E	A5L, A4L, A4C, B4L, A3L, 8-1/2" × 11"
Area H	A5L, A4L, A4C, B4L, A3L, 8-1/2" × 11", 8" × 13", 8-1/4" × 13" 8-1/2" × 13", 11" × 8-1/2", 8-1/2" × 14", 11" × 17"
Area P	5-1/2" × 8-1/2", 8-1/2" × 11", 11" × 8-1/2", 8-1/2" × 14", 11" × 17"

\*When the Sensor can not detect the paper size, the copier selects A5L or 5-1/2" × 8-1/2" as a default.

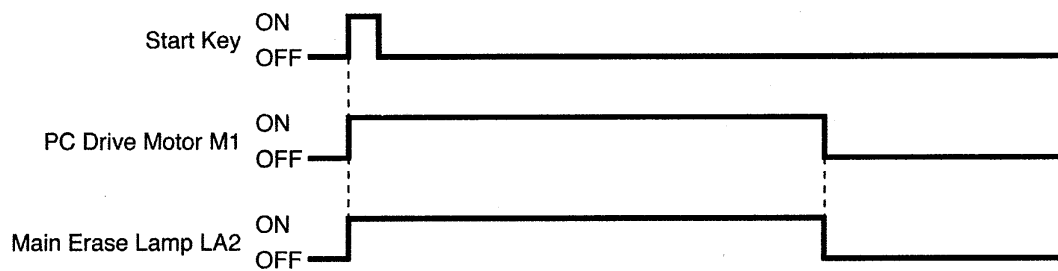
## 14 MAIN ERASE LAMP

Main Erase Lamp LA2 is turned ON to neutralize any surface potential remaining on the surface of the PC Drum after cleaning.



1149M012AA

The Main Erase Lamp is not a single lamp. A total of 40 LEDs are mounted on a board to make up LA2. The LA2 board is fitted with an acrylic cover to protect the LEDs from contamination.



1151T06MCA

	Control Signal	ON	OFF	WIRING DIAGRAM
LA2	PWB-A PJ1A-7	H	L	30-C

## 15 IMAGE TRANSFER AND PAPER SEPARATION

### Image Transfer

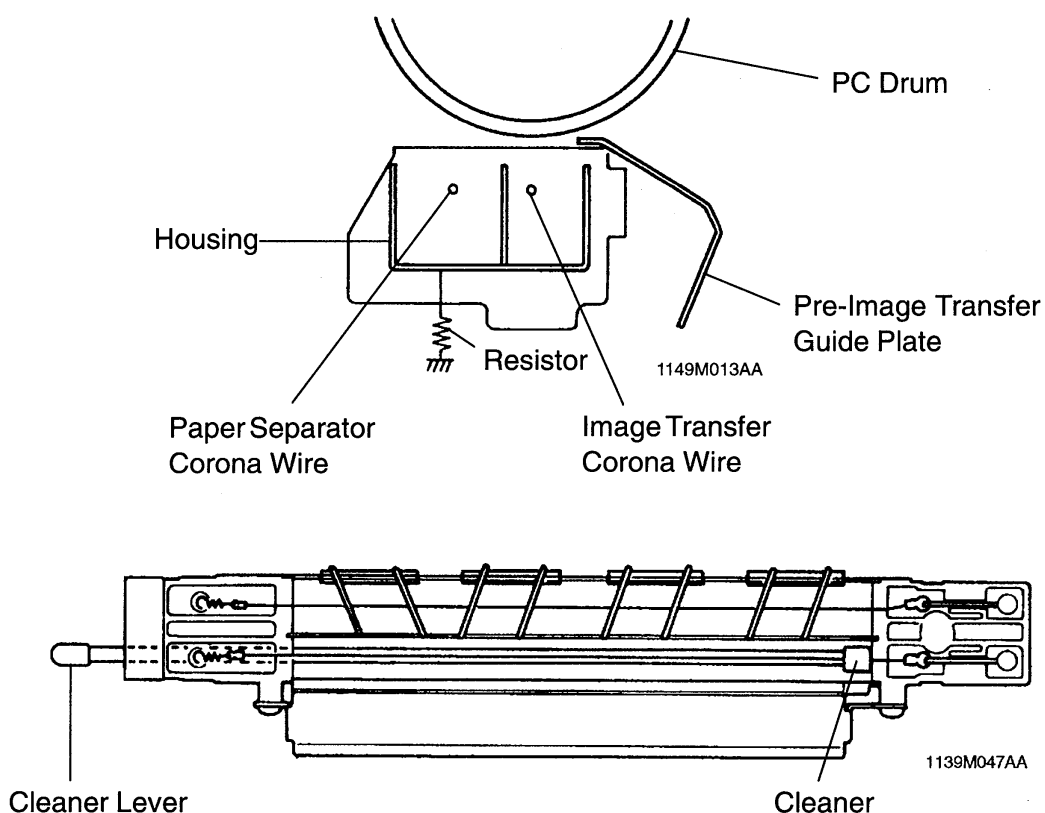
The Image Transfer Corona applies a DC negative corona emission to the underside of the paper thereby attracting the positively charged toner onto the surface of the paper to form a visible, developed image of the original. The Corona Unit is provided with a Corona Wire cleaning mechanism: the operator has only to pull out the Lever on which the Cleaner is mounted from the front of the copier, which cleans the Wire.

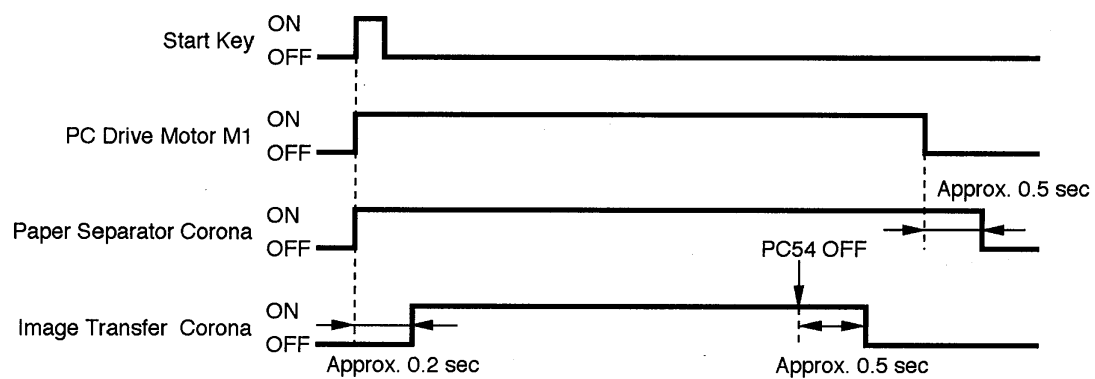
### Paper Separation

The Paper Separator Corona showers the underside of the paper with both positive and negative charges so that the paper can be easily separated from the PC Drum. In addition, two Paper Separator Fingers physically peel the paper off the surface of the PC Drum. (For details, see PAPER SEPARATOR FINGERS.)

The Image Transfer/Paper Separator Coronas Unit is provided with a Pre-Image Transfer Guide Plate that determines the angle at which the paper comes into contact with the PC Drum and keeps an optimum distance between the paper and the PC Drum so that the image may be properly transferred onto the paper.

The Image Transfer/Paper Separator Coronas Unit is grounded via a 2.6M $\Omega$  resistor, which improves its efficiency to discharge to the PC Drum side, thus reducing the output current from High Voltage Unit HV1.





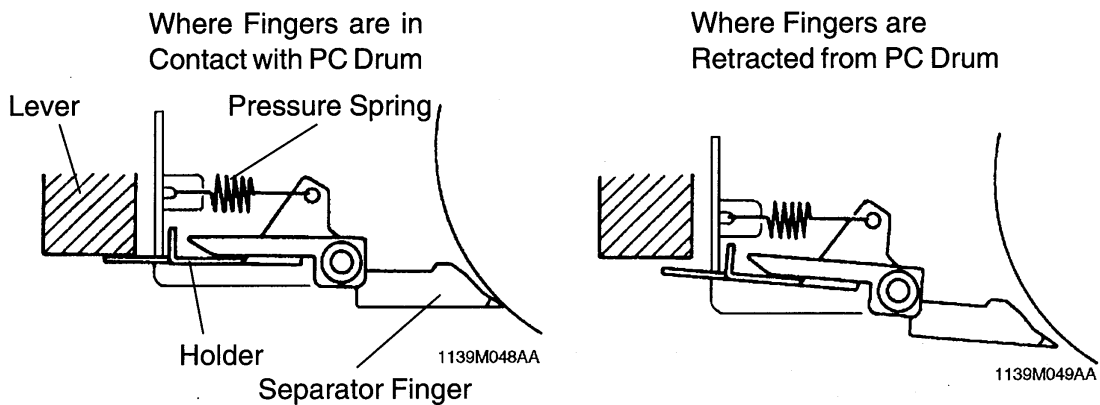
1150T13MCA

	Control Signal	ON	OFF	WIRING DIAGRAM
Image Transfer Corona	PWB-A PJ12A-5	L	H	7-D
Paper Separator Corona	PWB-A PJ12A-4	L	H	7-D

## 16 PAPER SEPARATOR FINGERS

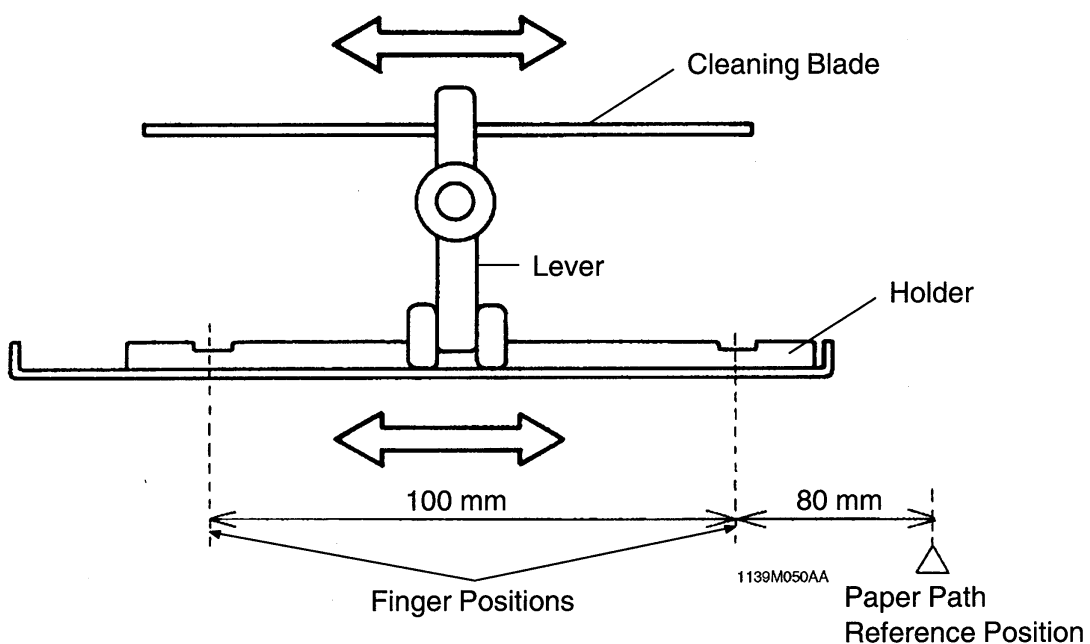
After image transfer, an AC corona emission is applied to the underside of the paper by the Paper Separator Corona to neutralize the paper so that it can be easily separated from the PC Drum. To further ensure that the paper is positively separated from the PC Drum, there are two Paper Separator Fingers attached to the Imaging Unit. They physically peel the paper off the surface of the PC Drum.

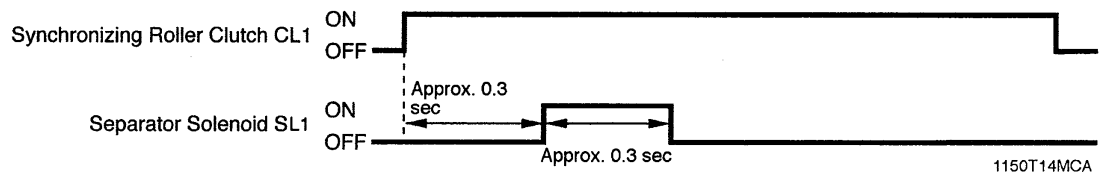
To prevent the Paper Separator Fingers from damaging the surface of the PC Drum, they are kept in the retracted position whenever they are not at work. As illustrated below, the Fingers are brought into contact with, and retracted from, the surface of the PC Drum by the Lever which is operated by Separator Solenoid SL1.



The Paper Separator Fingers are also moved over a given distance to the front and rear so that they will contact wider areas of the surface of the PC Drum, thus preventing localized damage to the PC Drum surface. This lateral movement is done by the Lever connected to the Cleaning Blade and, when the Cleaning Blade is moved, the Separator Fingers are also moved back and forth.

\*Lateral Movement: 3.7 mm



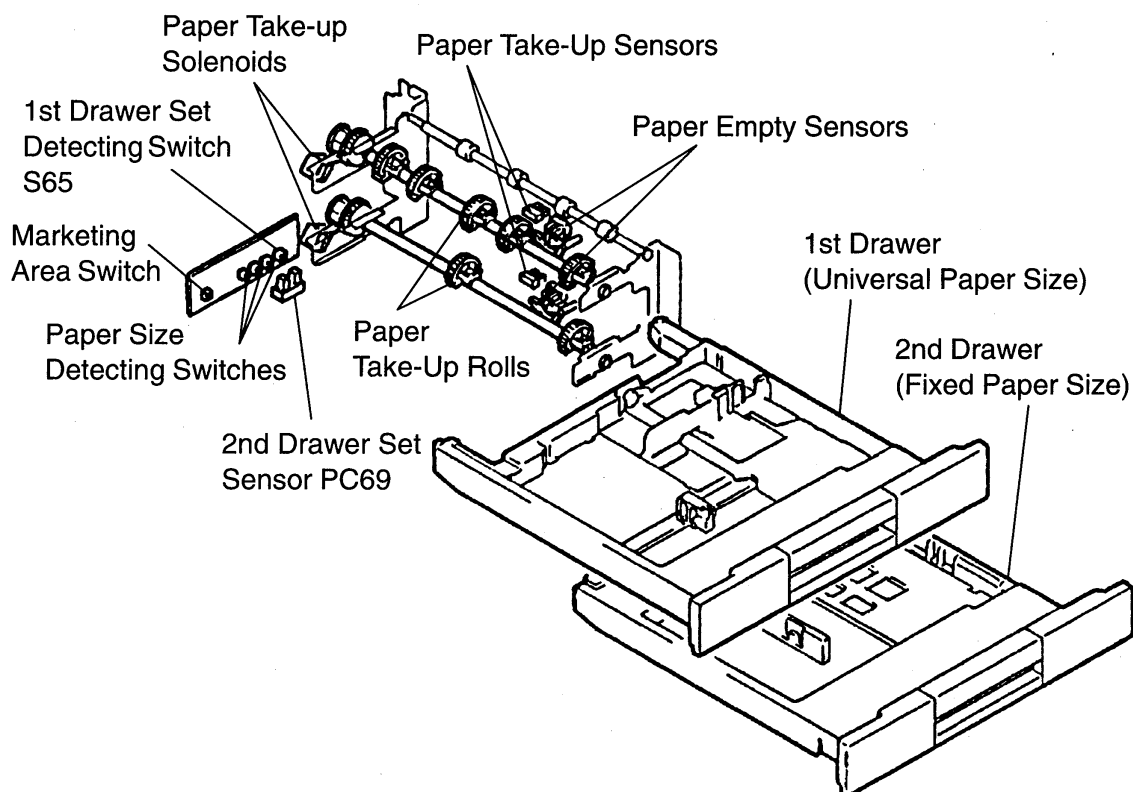


	Control Signal	Energized	Deenergized	WIRING DIAGRAM
SL1	PWB-A PJ14A-2	L	H	14-A

## 17 PAPER TAKE-UP/FEED SECTION

The copier is equipped with two Paper Drawers, 1st and 2nd, that can be slid out to the front of the copier. Each can hold up to 250 sheets of paper.

The 1st Drawer is a universal paper size type, while the 2nd Drawer is a fixed paper size type.



1151M004YA

### Paper Sizes That Can be Loaded

	Marketing Area Switch S66	1st Drawer	2nd Drawer
Inch Areas	Inch	5.5"×8.5", 8.5"×11", 8.5"×14", 11"×8.5", 11"×14", 11"×17"	8.5"×11" [LETTER], 11"×8.5" [LETTER], 8.5"×13" [G.LEGAL], 8.5"×14" [LEGAL], 11"×17", 5.5"×8.5" [INVOICE], 8"×10.5" [G.LETTER]
	Metric	A5L, A4L, A4C, A3L 8"×13", 8.5"×13" [G.LEGAL] 8-1/4"×13"	10.5"×8" [G.LETTER], 10"×14", 11"×14", 210×280, 280×210, 216×297, 216×320, 220×280, 220×330, 280×420, 210×330



	Marketing Area Switch S66	1st Drawer	2nd Drawer
Metric Areas	Metric	A3L, B4L, A4L, A4C, A5L, B5C, B5L (Taiwan Only), 8" × 13", 8.5" × 13"* , 8-1/4" × 13"	A3L, B4L, A4L, A4C, A5L, 8" × 13" 10" × 8" [QUARTO], 210 × 280, 216 × 297, 297 × 216, 216 × 320, 220 × 280, 297 × 430, 210 × 330
	Inch	5.5" × 8.5" [INVOICE], 8.5" × 11" [LETTER]* , 8.5" × 14" [LEGAL]* , 11" × 17"*	

\*Except Taiwan

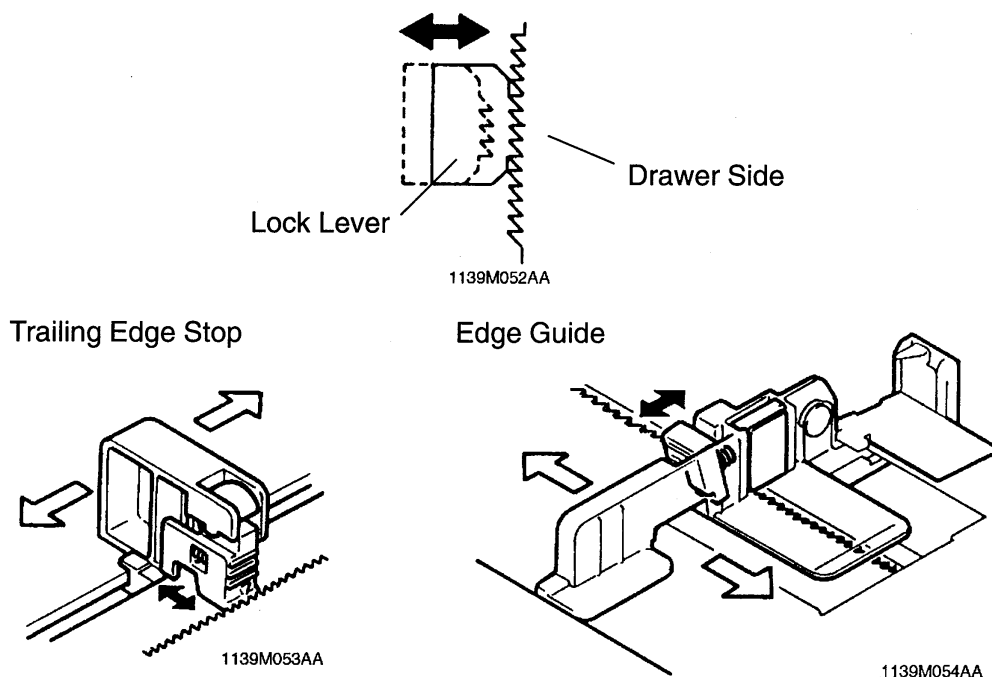
1151SBM1701A

## 17-1. Edge Guide and Trailing Edge Stop

### 1st Drawer

The 1st Drawer is a universal type allowing the user to slide freely the Edge Guide and Trailing Edge Stop to accommodate paper of different sizes.

The Edge Guide and Trailing Edge Stop can be locked into position by meshing the notches in the Lock Lever with those in the Drawer.



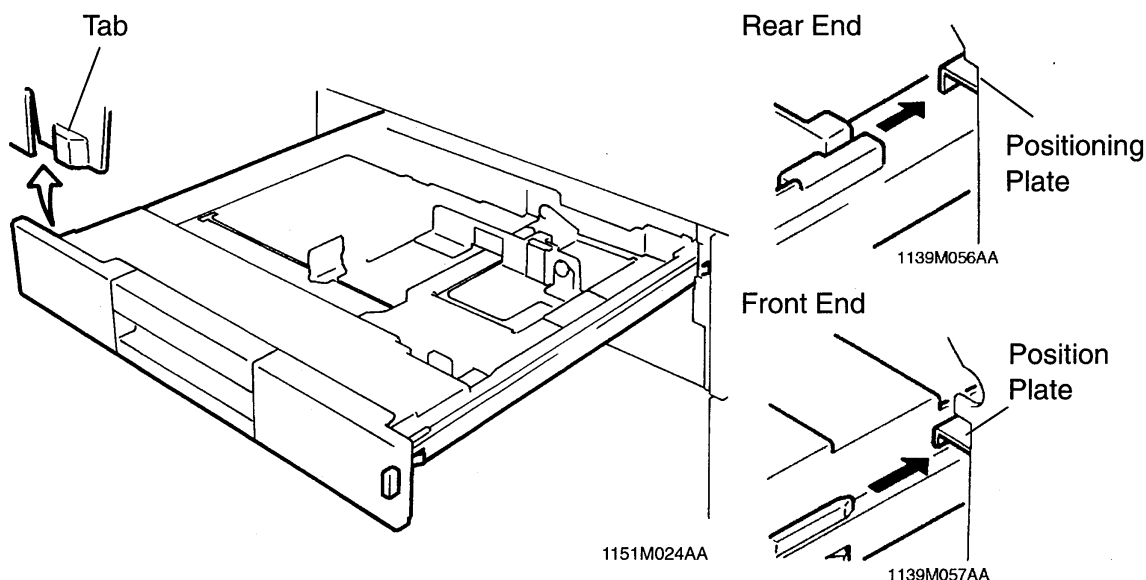
### 2nd Drawer

The 2nd Drawer is a fixed paper size type, in which the Edge Guide and Trailing Edge Stop are screwed into fixed positions.

The Edge Guide is provided with an Edge Pad (which is Velcro) that prevents double feed and ensures that the paper stack keeps its correct alignment with regard to the paper path reference position.

## 17-2. Drawer Positioning

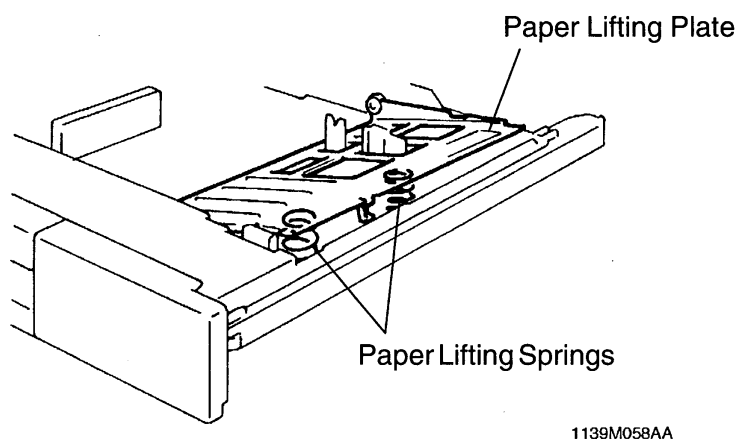
Each of the 1st and 2nd Drawers is positioned by fitting its Positioning Plate on the paper take-up end into the groove in the Drawer Frame. It is then secured in position by the magnet installed in the Drawer Front Cover on the paper take-up end. The tabs on both sides at the front of the Drawer ensure that the Drawer clicks into position. Any deviation in the paper path reference position can be adjusted within  $\pm 2$  mm by moving the Front Cover of the Drawer to the front or rear.



## 17-3. Paper Lifting Plate

The Paper Lifting Plate of each Drawer is raised at all times by two Paper Lifting Springs.

For the 2nd Drawer, the type and position of the Paper Lifting Springs must be changed according to the paper size. (For details, see DIS/REASSEMBLY, ADJUSTMENT.)



## 17-4. Drawer-in-Position Detection

The copier detects that the Drawer is slid into position as follows.

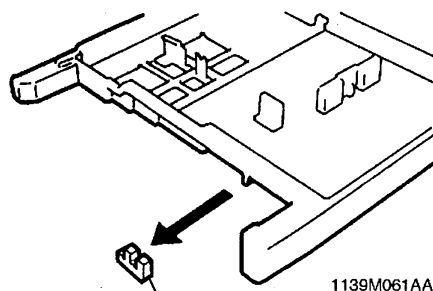
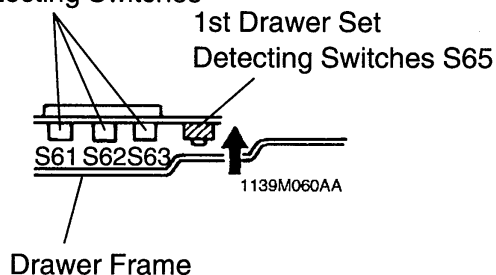
### 1st Drawer

When the 1st Drawer is slid into the copier, the Drawer Frame presses 1st Drawer Set Detecting Switch S65 installed on the back panel of the copier.

### 2nd Drawer

When the 2nd Drawer is slid into the copier, the Rib on the Drawer Frame blocks 2nd Drawer Set Sensor PC69.

Paper Size  
Detecting Switches



<Control>

	Control Signal	ON	OFF	WIRING DIAGRAM
S65	PWB-A PJ9A-13	L	H	25-G

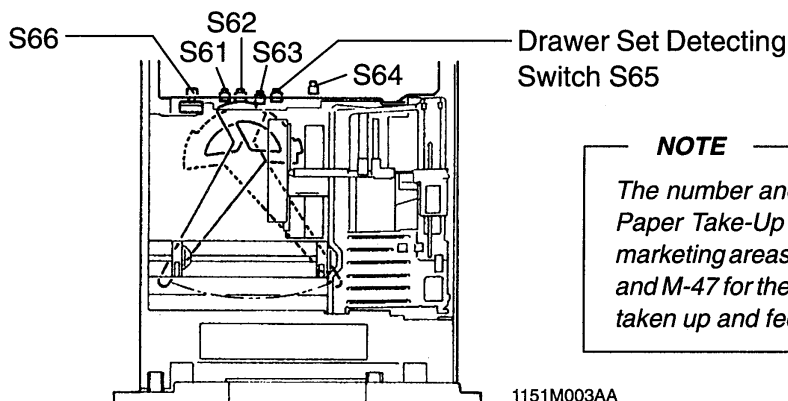
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC69	PWB-A PJ10A-2	L	H	25-K

## 17-5. Universal Tray (1st Drawer) Paper Size Detection

The length (feeding direction) and width (crosswise direction) of the paper are independently detected and the copier determines the paper size by combining the two separate detections made.

On the bottom of the tray are a lever fitted to the Trailing Edge Stop and another lever fitted to the Edge Guide. These levers actuate and deactivate Paper Size Detecting Switches S61, S62, S63, and S64 to allow the copier to determine a particular paper size.

Marketing Area Switch S66 is used to set the type of paper to be used (inch or metric).



### NOTE

The number and the installed position of the Paper Take-Up Rolls vary depending on the marketing areas: inch or metric. See pp. M-46 and M-47 for the sizes of the paper that can be taken up and fed out of the drawer.

Paper Size Detecting Switches				Paper Length	Inch/Metric Setting Switch S66	
Length (FD)			Width (CD)		Metric	Inch
S61	S62	S63	S64			
ON	ON	ON	-	~402.0	A3	11" × 17"
ON	ON	OFF	OFF	402.0~349.2	B4	8-1/2" × 14"
			ON			11" × 14"
ON	OFF	OFF	OFF	349.4~317.2	FLS	8-1/2" × 14"
			ON			11" × 14"
OFF	OFF	OFF	-	317.2~272.0	A4L	Letter L
OFF	OFF	ON	OFF	272.0~222.0	B5L	Letter L
			ON			Letter C
OFF	ON	ON	OFF	222.0~195.0	A5L	Invoice L
			ON		A4L	Letter C
OFF	ON	OFF	OFF	195.0~	B5C	Letter C
			ON			Letter L

The 2nd Drawer accepts only paper of a fixed size and has no paper size detecting system. (The paper size is input from the control panel using a Tech. Rep. Mode.)

<Control>

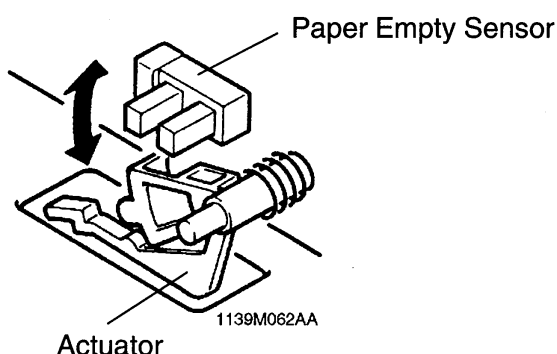
	Control Signal	ON	OFF	WIRING DIAGRAM
S61	PWB-A PJ9A-1	L	H	25-D
S62	PWB-A PJ9A-4	L	H	25-E
S63	PWB-A PJ9A-7	L	H	25-E
S64	PWB-A PJ9A-10	L	H	25-F
S66	PWB-A PJ10A-4	L	H	25-G

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## 17-6. Paper Empty Detection

When the Drawer runs out of paper, the Actuator for the Paper Empty Sensor drops into the cutout in the Paper Lifting Plate. This activates the Paper Empty Sensor and the copier will know that the Drawer has run out of paper.

As we noted earlier, the Paper Lifting Plate is raised at all times by the Paper Lifting Springs. To prevent the Actuator for the Paper Empty Sensor (PC101 for the 1st Drawer and PC102 for the 2nd Drawer) from being caught by the paper stack when the Drawer is slid out of the copier, therefore, it is tilted slightly. This, however, results in the operating stroke of the Actuator becoming small, which increases the possibility of the Actuator activating the Sensor by flexing of a sheet of paper as it is taken up and fed in. To prevent this false detection a paper-empty condition, the paper empty detection is enabled only when the Paper Take-Up Roll is in the retracted position. (See 17-8. "Paper Take-Up Roll" for the retracted position of the Paper Take-Up Roll.)



<Control>

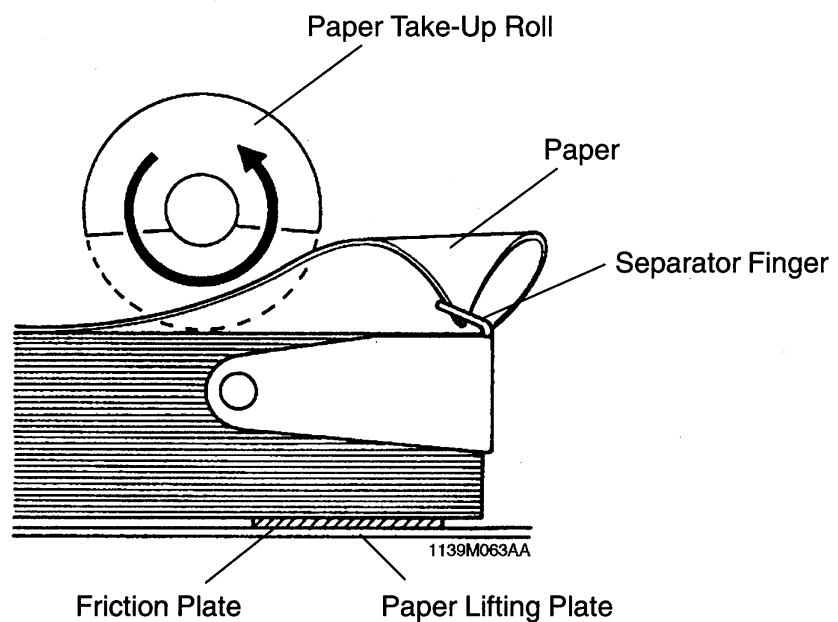
	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC101	PWB-A PJ7A-6	L	H	25-B
PC102	PWB-A PJ8A-4	L	H	25-J

## 17-7. Paper Separating Mechanism

Each Drawer has Fingers that function to separate the top sheet of paper from the rest of the paper stack at paper take-up. The Fingers are fitted to the right front and rear corners of the Drawer. When the Paper Take-Up Roll starts turning to take up the top sheet of paper, its turning force is directly transmitted to the top sheet of paper as it is in direct contact with the Paper Take-Up Roll. That force overcomes the block of the Fingers, causing the top sheet of paper to ride over the Fingers and be fed out of the Drawer into the copier.

As to the second sheet of paper, the paper transport force obtained through friction with the top sheet of paper is weak and does not allow the second sheet of paper to ride over the block of the Fingers. Hence, the second sheet of paper remains stationary with the rest of the paper stack in the Drawer.

When there are only two sheets of paper left in the Drawer, the bottom sheet can be fed with the top one if the friction of the Paper Lifting Plate is weak. The Friction Plate affixed to the Paper Lifting Plate prevents this from happening.



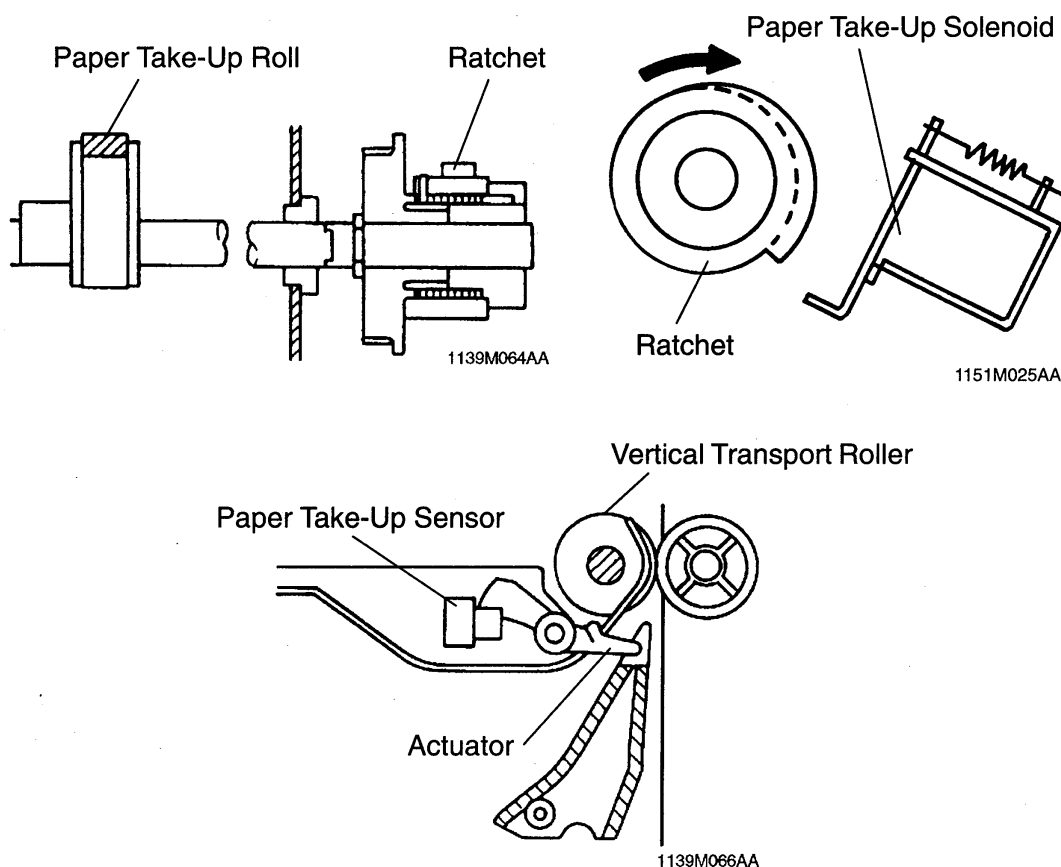
## 17-8. Paper Take-Up Roll

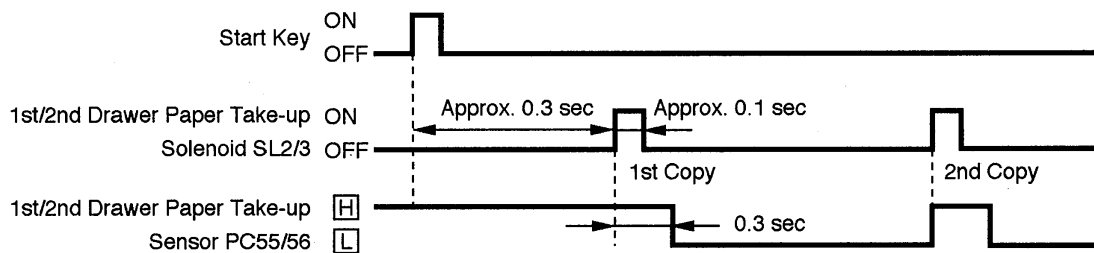
Since the Paper Lifting Plate is raised at all times by the Paper Lifting Springs, paper is wedged in the mechanism when the Drawer is slid out of the copier if the Paper Take-Up Roll is round in shape. So the Take-Up Roll is semicircular and the circular part of the Roll is positioned on top at times other than take-up. For convenience, we call this position of the Paper Take-Up Roll the "retracted" position.

The Paper Take-Up Roll is grooved to keep good friction even under heavy loading. The 1st Drawer, which is a universal type to accommodate paper of different sizes, is provided with five (four in areas using only inch paper) Paper Take-Up Rolls. The 2nd Drawer accommodating paper of a fixed size only is equipped with two Rolls whose positions must be changed according to the paper size. (For the positions, see DIS/REASSEMBLY, ADJUSTMENT.)

The Paper Take-Up Roll is driven when the Paper Take-Up Solenoid (SL2 for the 1st Drawer and SL3 for the 2nd Drawer) is energized. The Roll is turned one complete turn for each single sheet of paper.

The Paper Take-Up Sensor (PC55 for the 1st Drawer and PC56 for the 2nd Drawer) is used to detect whether a sheet of paper has been properly taken up or not.





1150T15MCA

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
SL2	PWB-A PJ7A-9	L	H	25-C
SL3	PWB-A PJ8A-2	L	H	25-I

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC55	PWB-A PJ7A-2	H	L	25-B
PC56	PWB-A PJ8A-7	H	L	25-J

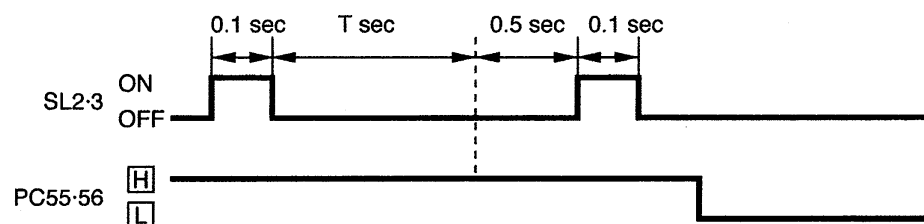
1151SBM1709A

## 17-9. Paper Take-Up Retry Control

To minimize the occurrence of paper misfeed due to a slippery Paper Take-Up Roll, the Paper Take-Up Solenoid is energized a second time if a sheet of paper fails to reach the Paper Take-Up Detecting Sensor within T sec. after the solenoid has been deenergized. The solenoid is energized a second time 0.5 sec. after the above-mentioned period of T sec. has elapsed. (This is referred to as the paper take-up retry function.)

A misfeed results if the sheet of paper does not reach the Paper Take-Up Detecting Sensor even after the three paper take-up sequences.

Here is the control timing chart.



1151T09MCA

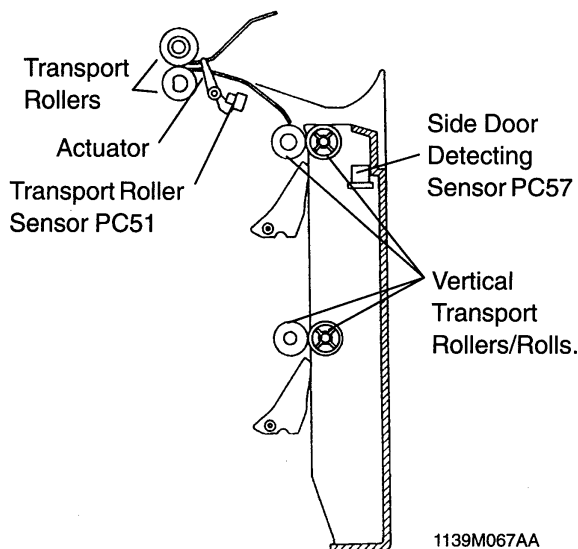
	1 st Drawer	2nd Drawer
T	1.3 sec.	1.6 sec.



## 18 VERTICAL PAPER TRANSPORT

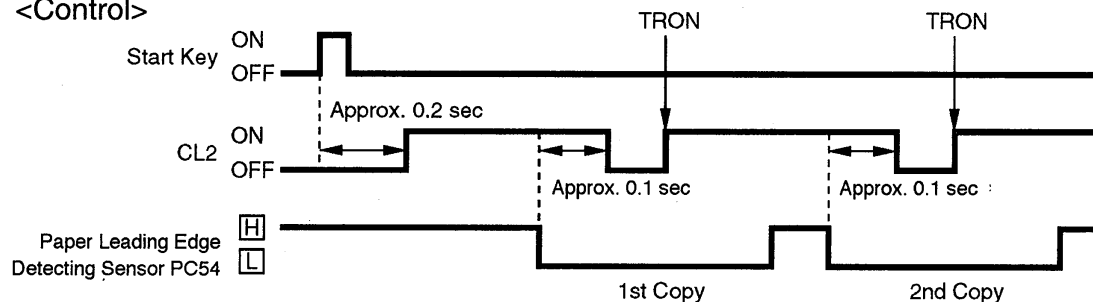
The sheet of paper taken up by the Paper Take-Up Roll from the Drawer is fed along the Paper Guide to the Vertical Transport Rollers. The paper fed by the Vertical Transport Rollers reaches the Transport Rollers and is then fed up to the Synchronizing Rollers. The Transport Rollers are turned and stopped by Paper Transport Clutch CL2. Transport Roller Sensor PC51 immediately before the Transport Rollers detects a sheet of paper fed from the Vertical Transport Section or Manual Bypass Table.

The Cover for the Vertical Transport Section (i.e., the Side Door) can be opened and closed for clearing misfeeds. Side Door Detecting Sensor PC57 detects whether or not this Cover is open.



1139M067AA

### <Control>



1150T16MCA

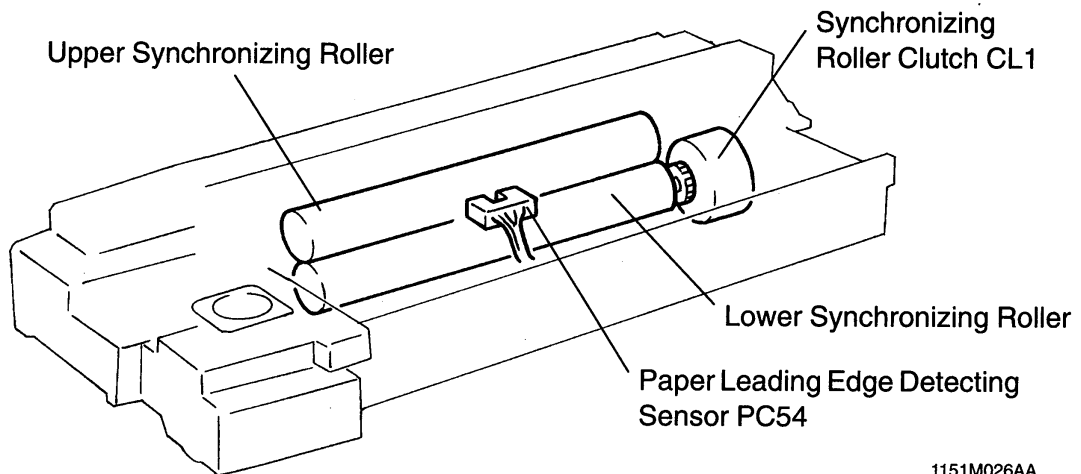
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M2	PWB-A PJ12A-10	L	H	5-F
CL2	PWB-A PJ6A-2	L	H	2-M

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC54	PWB-A PJ18A-2	L	H	14-D

## 19 SYNCHRONIZING ROLLERS

The Synchronizing Rollers, operating in phase with the Scanners' scan motion and paper feeding, synchronize the leading edge of the copy paper accurately with the leading edge of the toner image on the PC Drum.

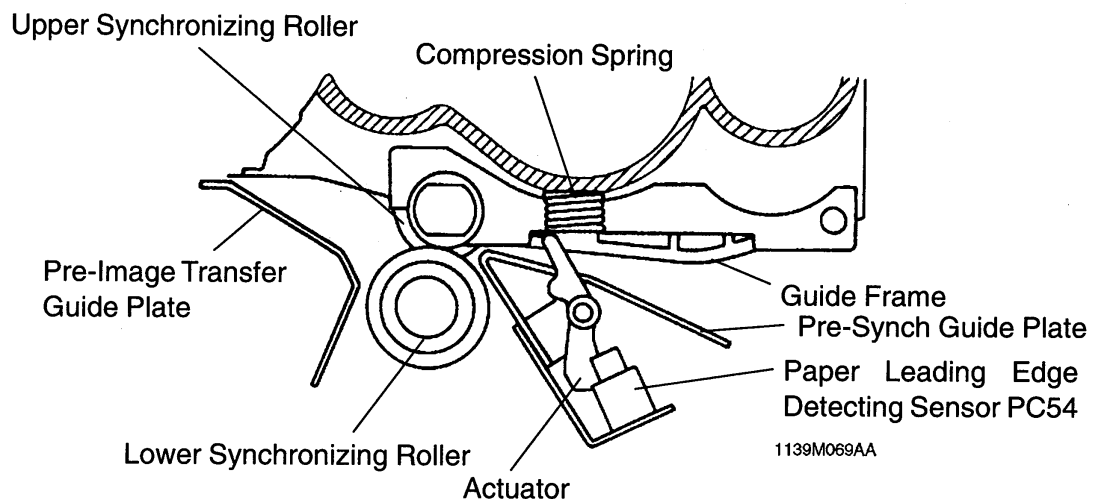
The Upper Synchronizing Roller is a metal roller covered with a polyvinyl chloride tubing, while the Lower one is a rubber roller.



1151M026AA

To facilitate clearing of misfeeds, the Upper Synchronizing Roller is installed in the Imaging Unit. It is fitted to the Guide Frame of the Imaging Unit and the Compression Springs at the front and rear ends press the Roller downward so that it makes contact with the Lower Synchronizing Roller. The Lower Roller is driven by the drive source, while there is a gear train that transmits the rotation of the Lower Roller to the Upper Roller, thus ensuring good paper transport performance.

To ensure good image transfer during conditions of high humidity, the Pre-Synch Guide Plate is electrically floated by a plastic spacer, grounded through an 82M $\Omega$  resistor and 1kV varistor.

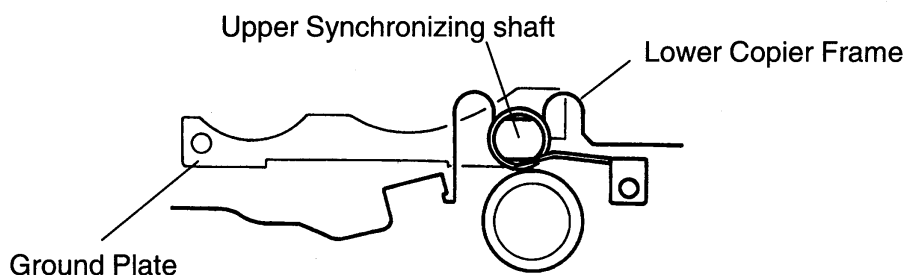


1139M069AA

### 19-1. Upper Synchronizing Roller Positioning

Since the Upper Synchronizing Roller is fitted to the Imaging Unit, it must be correctly positioned with reference to the Lower Synchronizing Roller when the Upper Half of the copier is swung down into the locked position. For this purpose, slits are cut in the lower copier frame and the Bushings of the Upper Synchronizing Roller fit into these slits.

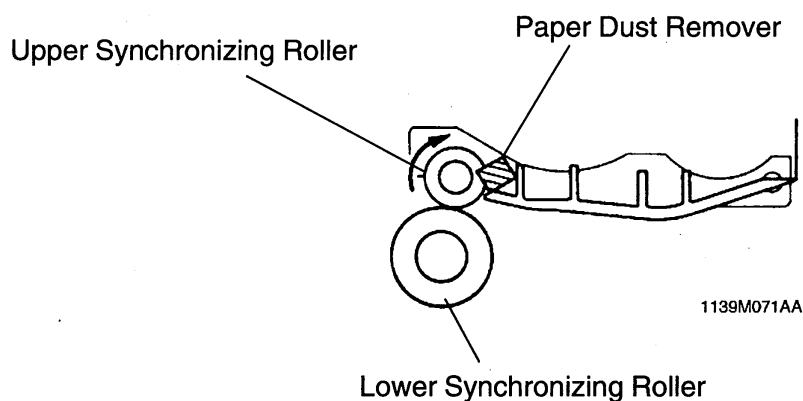
The Upper Synchronizing Roller is grounded through the Bushings which are in contact with the frame. To positively ground the Roller, the Ground Plate fitted to the lower frame makes contact with the Shaft of the Upper Synchronizing Roller.



1151M027YA

### 19-2. Paper Dust Remover

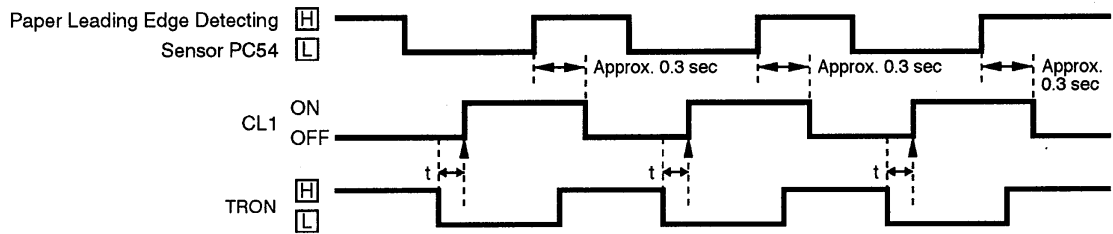
The Paper Dust Remover is installed so that it makes contact with the Upper Synchronizing Roller. Since the Upper Synchronizing Roller is covered with a vinyl tubing, triboelectric charging occurs as the Roller turns in contact with the Paper Dust Remover. As paper is then fed between the Synchronizing Rollers, the charges on the tubing attract paper dust from the paper. The dust is then transferred onto the Paper Dust Remover.



1139M071AA

### 19-3. Synchronizing Roller Control

The Synchronizing Rollers are started as Synchronizing Roller Clutch CL1 is energized upon reception of a signal from PWB-A.



1150T17MCA

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
CL1	PWB-A PJ6A-4	L	H	2-N

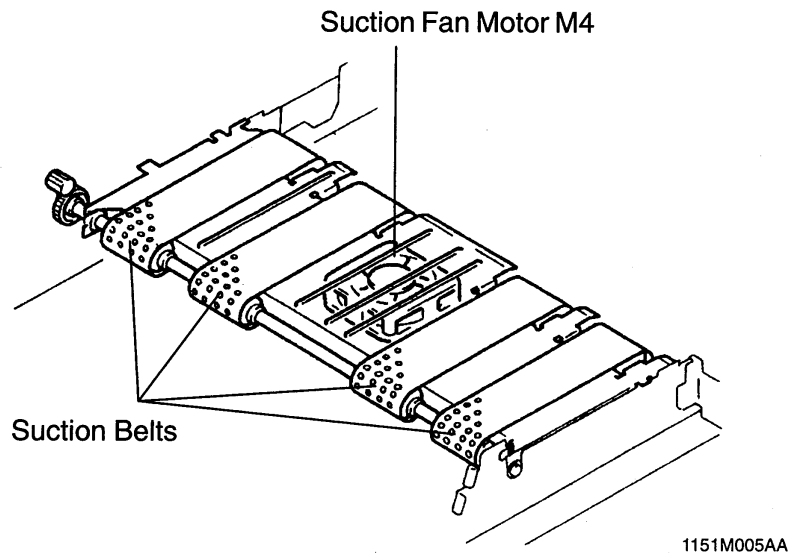
  

	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC54	PWB-A PJ18A-2	L	H	14-D

## 20 PAPER TRANSPORT

After having gone through the image transfer and paper separation processes, the paper is then transported to the Fusing Unit by the Suction Belts of the Suction Deck driven directly by Main Drive Motor M2.

Suction Fan Motor M4 draws the paper onto the turning Suction Belts for positive transport of the paper.

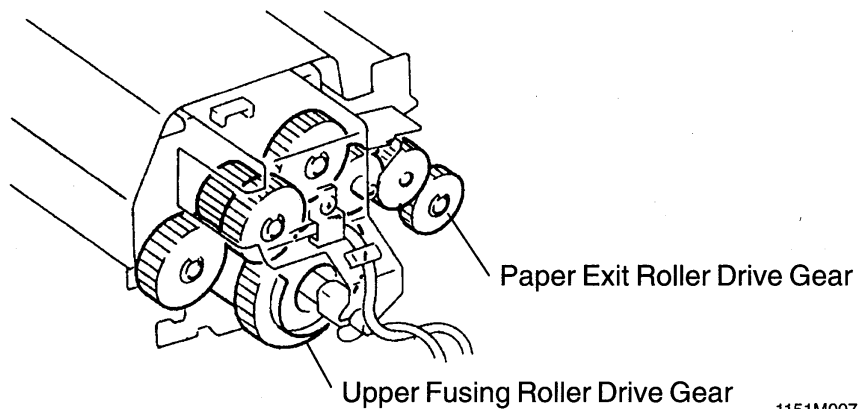
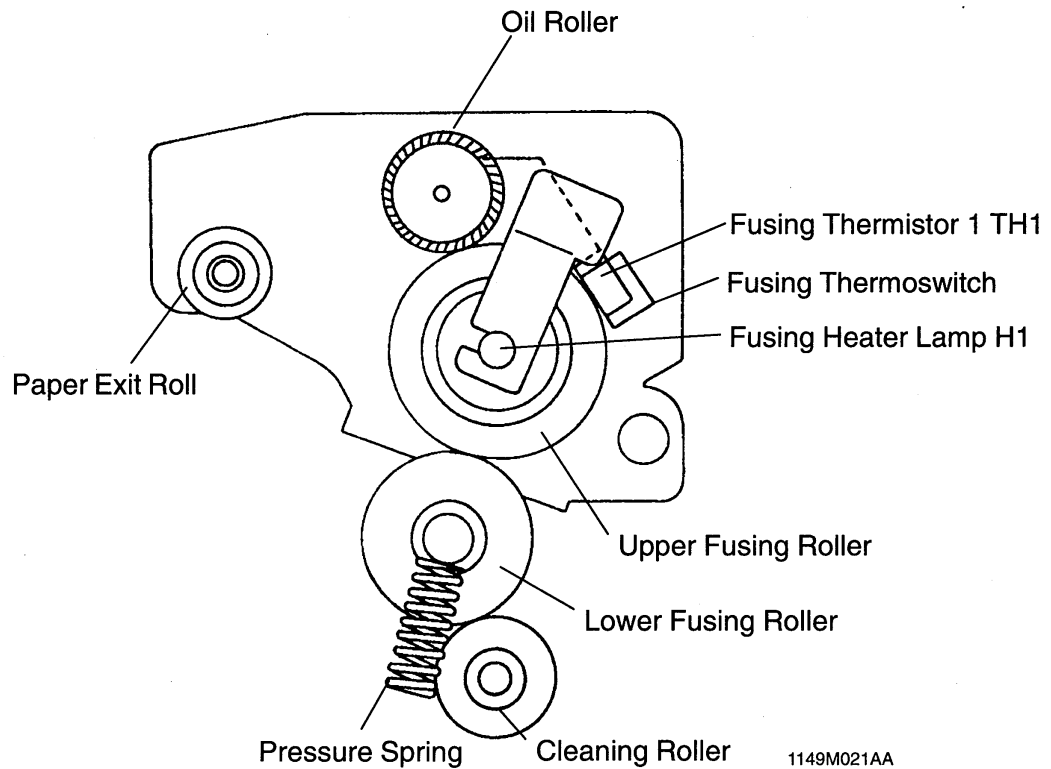


	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M2	PWB-A PJ12A-10	L	H	5-F
M4	PWB-A PJ6A-8	L	H	2-O

## 21 FUSING UNIT

The Upper Fusing Roller and Lower Fusing Roller together apply heat and pressure to the toner and paper to permanently fix the developed image to the paper.

Drive for the Upper Fusing Roller is transmitted from the Main Drive Motor to the Upper Fusing Roller Drive Gear. The Lower Fusing Roller, Cleaning Roller are driven by the respective Rollers in contact with them.



## 21-1. Fusing Temperature Control

The Upper Fusing Roller is heated by Fusing Heater Lamp H1 which is an AC halogen lamp. Fusing Thermistor 1 TH1 and Fusing Thermistor 2 TH2 installed on the Upper Fusing Roller helps keep the optimum fusing temperature.

The fusing temperature is normally controlled at 190°C. To ensure good fusing performance, however, even when the Lower Fusing Roller remains cool immediately after warm-up in the early morning, the temperature is controlled as follows when the copier is turned ON:

\*If the initial fusing temperature is less than 100°C:

Temperature is controlled at 210°C for 10 min. after the copier has completed warming up, which is followed by a temperature control at 190°C.

\*If, however, a copy cycle is started while temperature is being controlled at 210°C, the temperature control at 190°C is started 1 min. after the Start key is pressed.

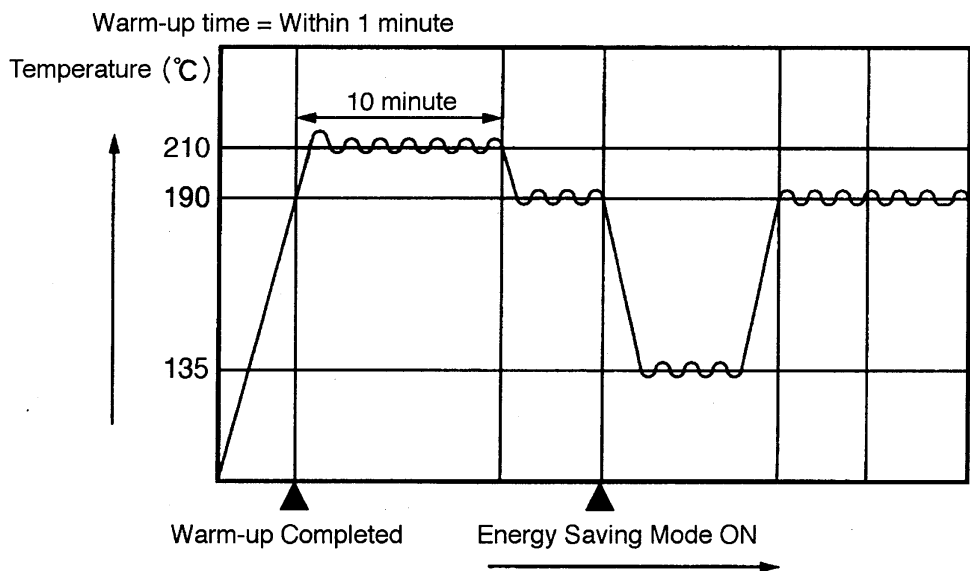
\*If the initial fusing temperature is more than 100°C:

Temperature is controlled at 190°C after the copier has completed warming up.

TH1 is positioned at a point 84 mm from the paper path reference position, thereby preventing offset caused by low temperature and degraded fusing performance for small-size paper.

The control temperature in the Energy Saving Mode is 135°C.

Fusing Thermoswitch TS1, installed above the Upper Fusing Roller, cuts off the power to the Fusing Unit if the temperature of the Upper Fusing Roller becomes excessively high. It eliminates the possibility of a fire that could occur when TS1 remains ON due to a faulty temperature control circuit.



1150M030CB

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### <Fusing Temperature Control During Continuous Small-Size Paper Feeding>

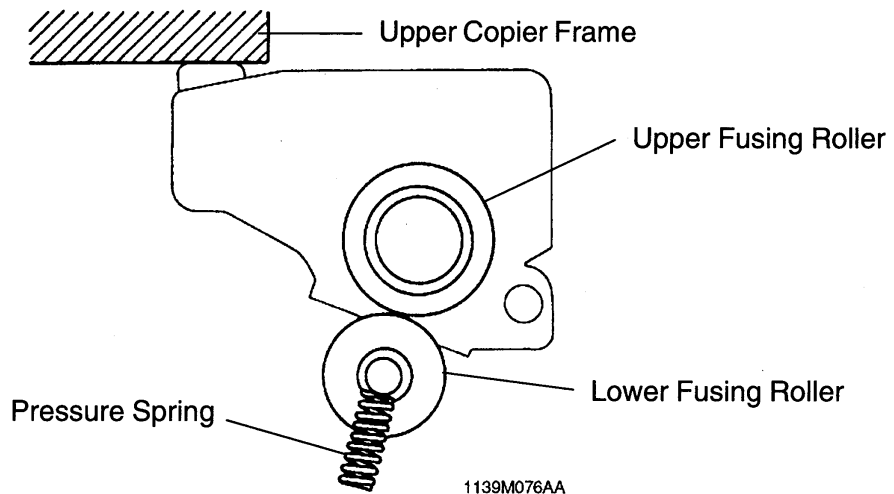
When a number of sheets of small-size paper are fed through the copier continuously, the temperature of the rear end of the Fusing Rollers tends to rise, resulting in a high-temperature offset occurring. Fusing Thermistor TH2 is installed at a location 278.5 mm from the position of paper passage registration. As soon as TH2 detects 225°C, the 225°C control by TH2 is started.

1151SBM2102A

### 21-2. Fusing Rollers Pressure Mechanism

Pressure Springs are installed at both ends of the Lower Fusing Roller. These springs contact the bearings mounted on both ends of the Lower Fusing Roller and exert pressure through the Lower Fusing Roller to the Upper Fusing Roller which is installed in the Fusing Unit.

The Fusing Unit is divided into an upper and a lower half, and the upper half can be swung open. The Upper Half of the copier, when locked in position, presses the upper half of the Fusing Unit down onto its lower half.

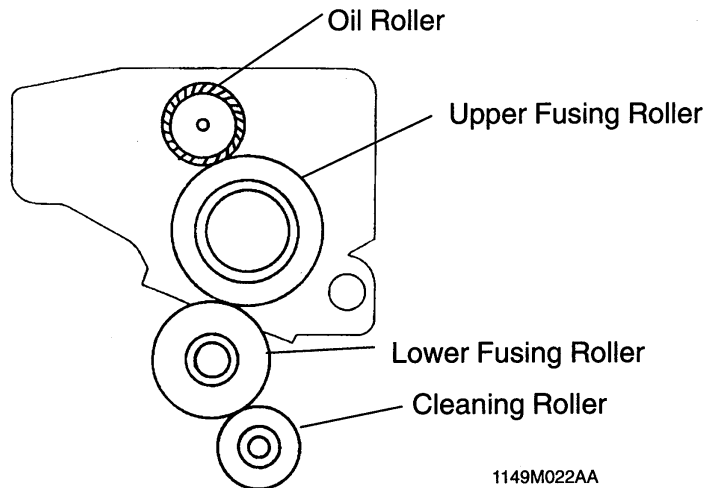




### 21-3. Oil Roller/Cleaning Roller

The Oil Roller is pressed up against the Upper Fusing Roller, applying a coat of silicone oil to the surface of the roller. At the same time, it turns in the direction opposite that of the Upper Fusing Roller and, with its brush, removes toner and paper dust.

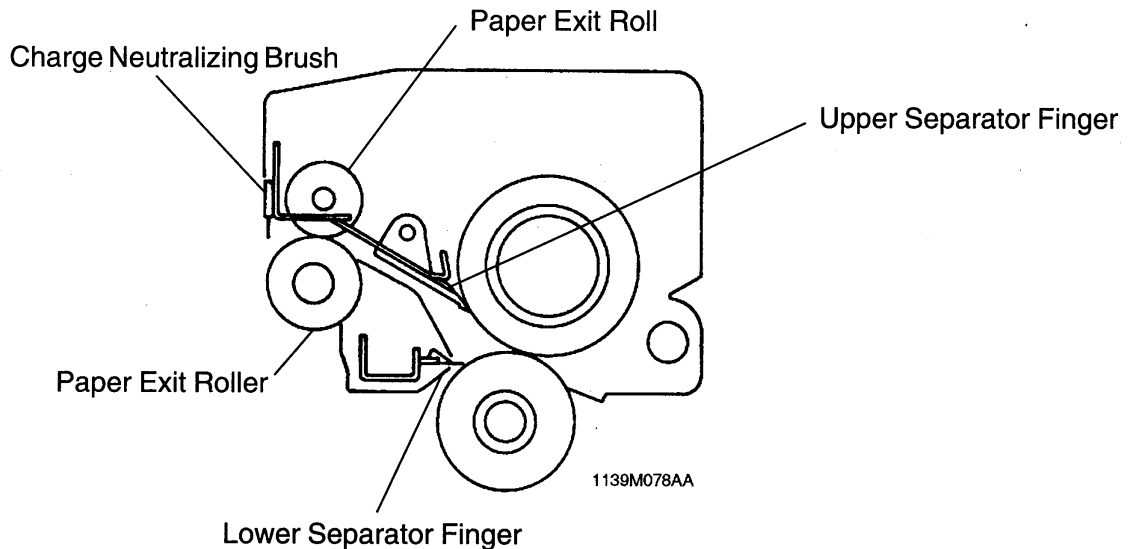
The Cleaning Roller is pressed against the surface of the Lower Fusing Roller, thus assisting cleaning of the fusing rollers.



1149M022AA

## 22 EXIT UNIT

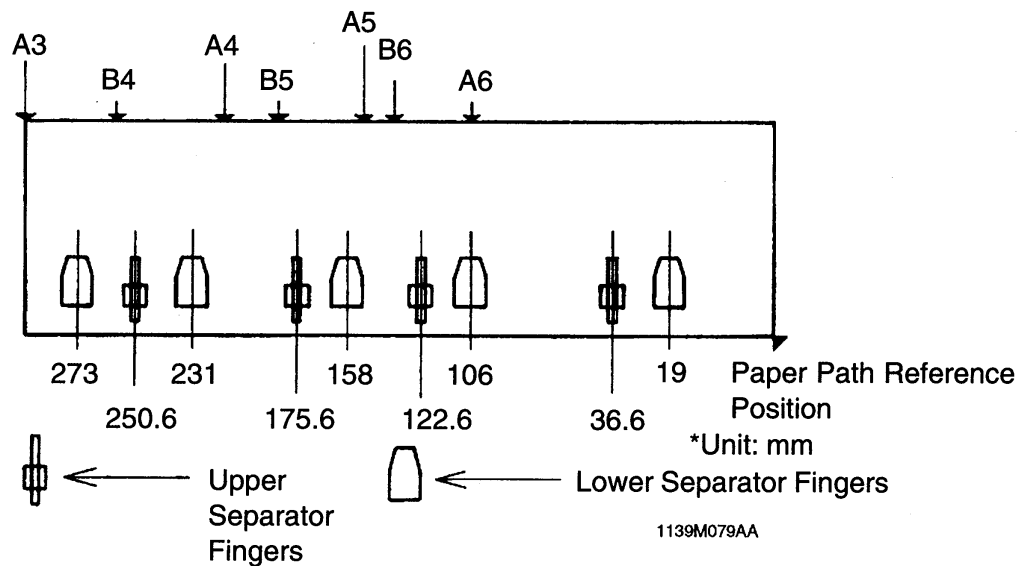
The Paper Exit Roller/Rolls feed the paper, to which the developed image has been fixed, out of the Fusing Unit onto the Copy Tray. The Charge Neutralizing Brush touches the surface of the sheet of paper being fed out of the Fusing Unit to neutralize any static charge left on it. The Upper and Lower Separator Fingers strip the paper from the surface of the Upper/Lower Fusing Roller.



1139SBM2201A

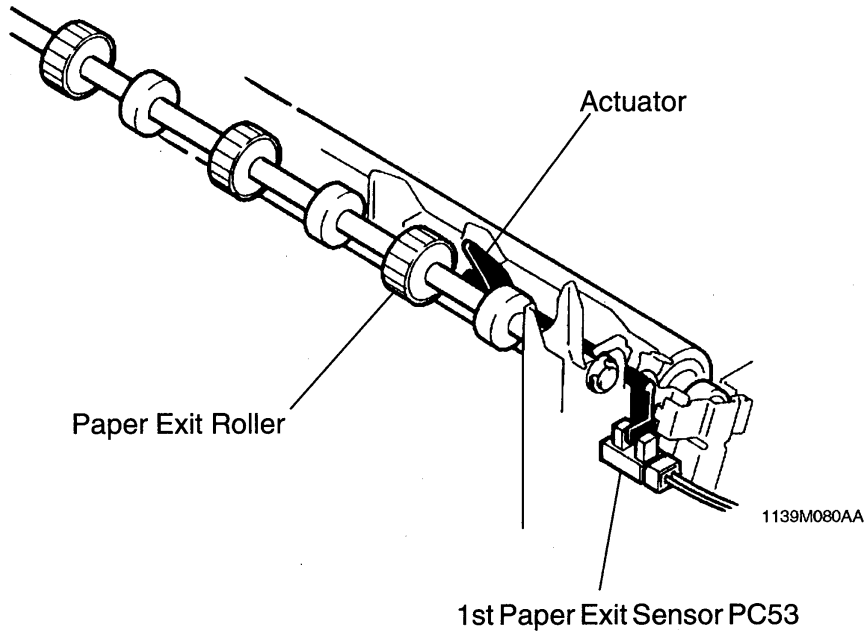
### 22-1. Upper/Lower Separator Fingers

The Upper and Lower Separator Fingers are laid out as shown below to cope with many different paper sizes.



**22-2. Paper Exit Sensor**

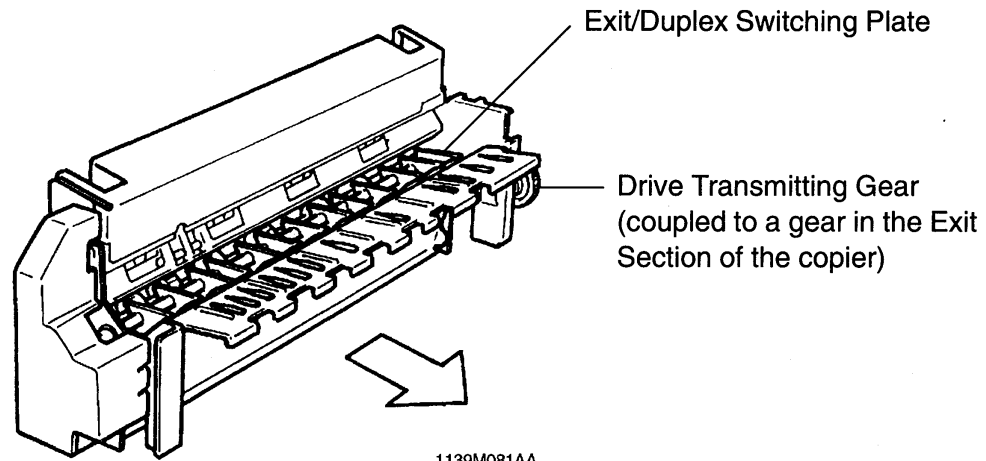
1st Paper Exit Sensor PC53 installed in the paper exit section of the lower half of the copier detects the sheet of paper being fed out of the Fusing Unit onto the Copy Tray.



	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC53	PWB-A PJ21A-2	L	H	14-F

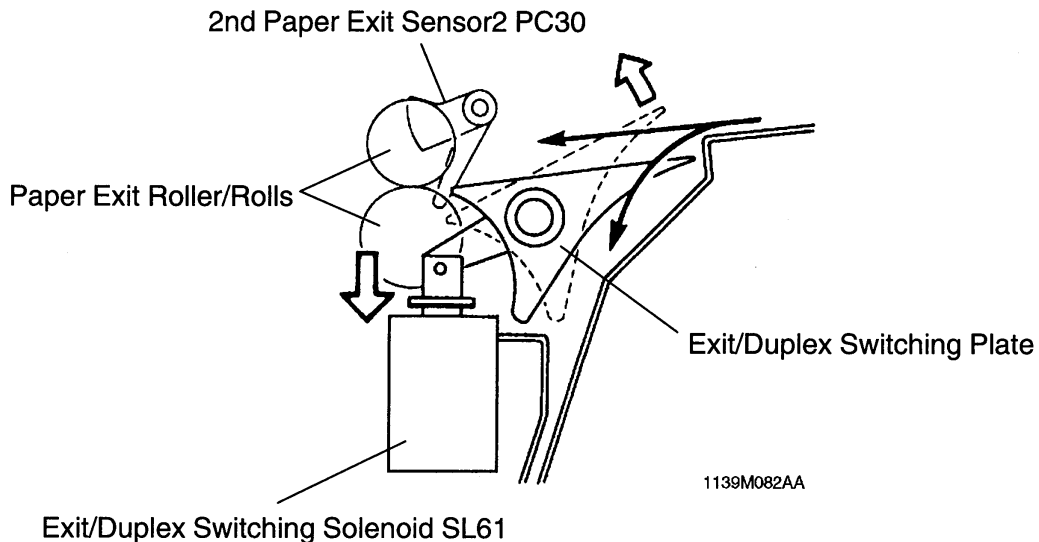
## 23 EXIT/DUPLEX SWITCHING UNIT (OPTION)

If the copier is configured with an optional Sorter or Staple Sorter, or Duplex Unit (installed in the Cabinet), the Exit/Duplex Switching Unit must be fitted to the exit section of the copier.



1139M081AA

Main Control Board PWB-A outputs a signal to energize Exit/Duplex Switching Solenoid SL61, which switches the position of the Exit/Duplex Switching Plate. The Unit has 2nd Paper Exit Sensor2 PC30 built into it which detects a sheet of paper being fed out of the Unit. (For more details of switching control, see the Service Manual for "DUPLEXING UNIT.")

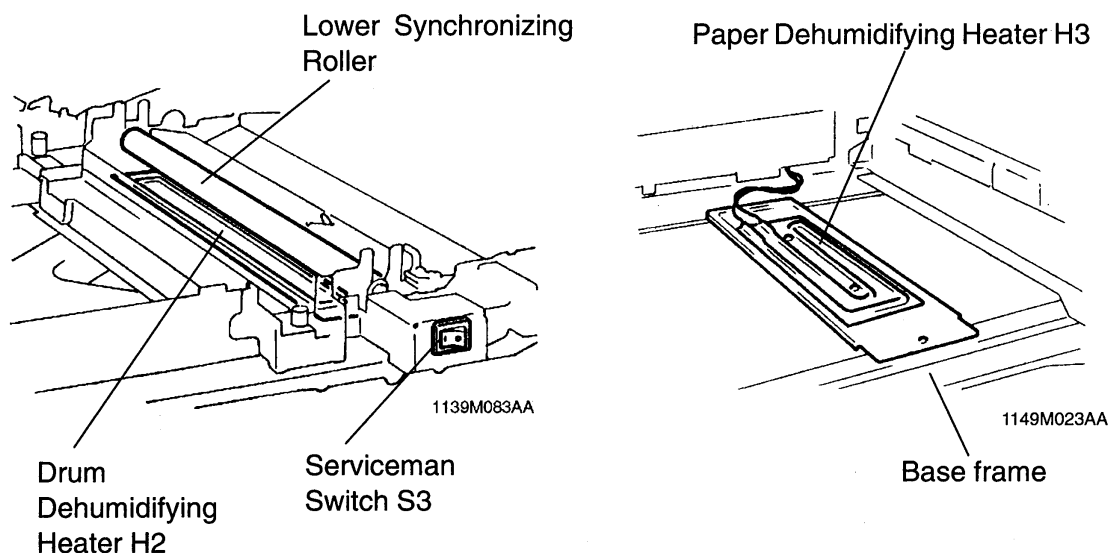


1139M082AA

## 24 DEHUMIDIFYING SWITCH (OPTION)

To prevent image transfer efficiency from being reduced due to damp paper in highly humid weather, Paper Dehumidifying Heater H3 is installed on the base frame of the copier under the 2nd Drawer.

While, Drum Dehumidifying Heater H2 is located under the Lower Synchronizing Roller to prevent the PC Drum from forming condensation.



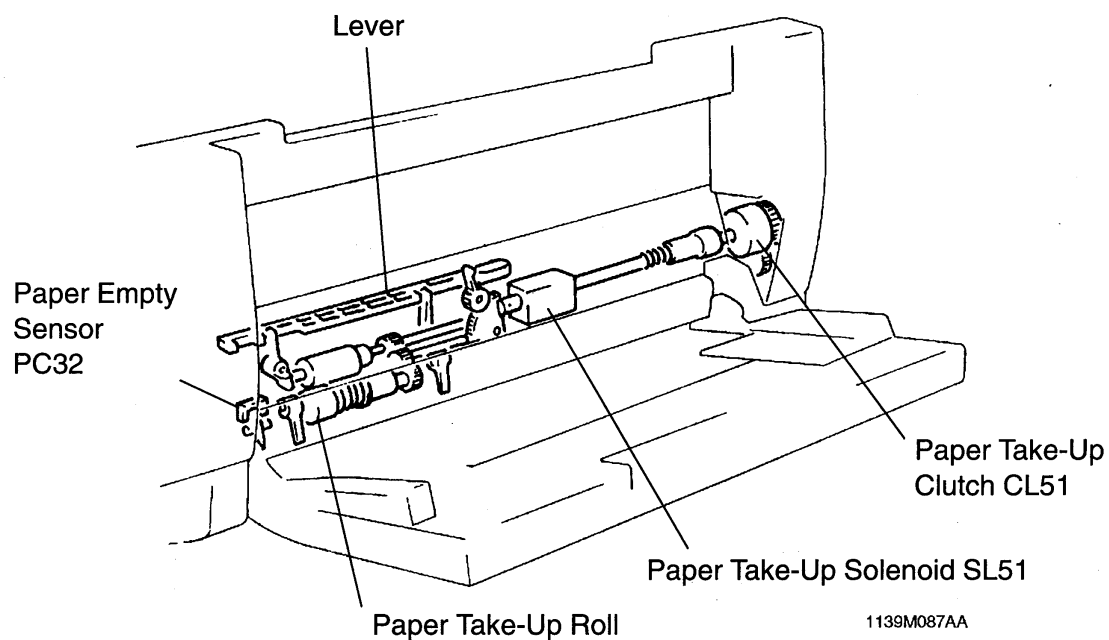
### ● H2, H3 ON/OFF Conditions

	Serviceman Switch ON		
	Power cord Plugged in	Power Switch ON	*During a copy cycle
H2	ON	OFF	OFF
H3	ON	ON	OFF

\*During a copy cycle: Refers to the period of time between when the Start Key is pressed and when Main Drive Motor M2 is deenergized.

**25 MULTI BYPASS TABLE**

The Multi Bypass Table permits the user to make multiple copies (up to 50) on paper that cannot be fed automatically via any built-in paper drawer of the copier.



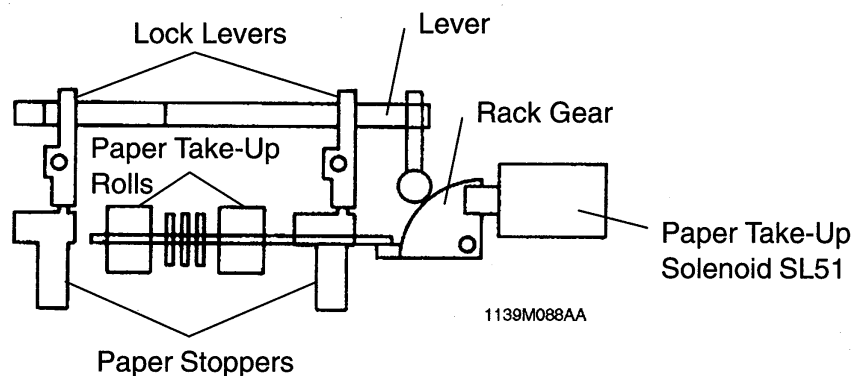
## 25-1. Paper Take-Up Mechanism

The Paper Take-Up Rolls are normally in their raised (retracted) position so that they will not hamper proper loading of paper. When the Start Key is pressed, Paper Take-Up Solenoid SL51 is deenergized causing the Paper Take-Up Rolls to press the paper stack downward and take up a sheet of paper.

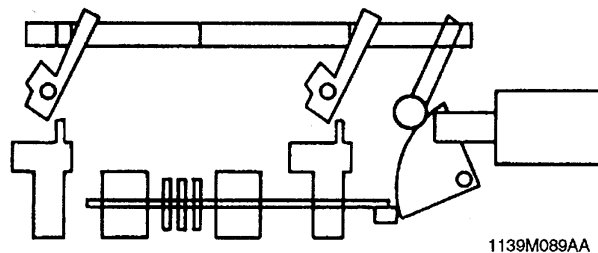
There are Paper Stoppers provided that block the leading edge of the paper stack as it is loaded on the Table, preventing any portion of the leading edge of the paper from getting inside. These Stoppers are unlocked at paper take-up, allowing paper into the copier.

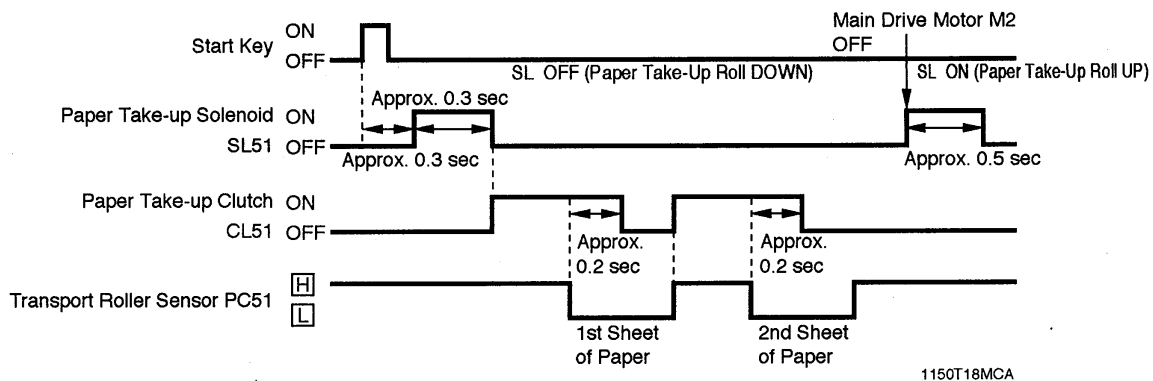
Paper Take-Up Clutch CL51 controls the turning and stop of the Paper Take-Up Rolls.

In Standby



At Take-Up





	Control Signal	Energized	Deenergized	WIRING DIAGRAM
CL51	PWB-A PJ11A-4	L	H	30-G
SL51 Down	PWB-A PJ11A-2	L	H	30-G
SL51 UP	PWB-A PJ11A-3	L	H	

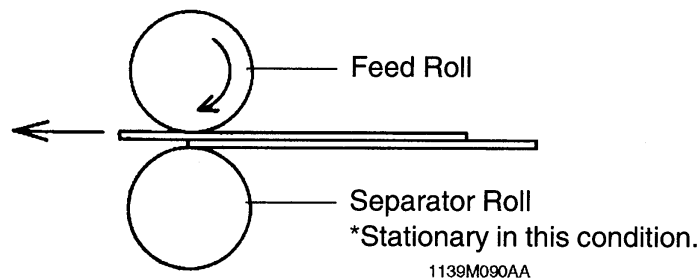


## 25-2. Paper Separating Mechanism

The paper separating mechanism ensures that only the top sheet of paper is fed in by separating the second sheet of paper from the top one. This is accomplished by the Torque Limiter fitted to the Separator Roll shaft which stops the Separator Roll when there is a change in friction between the Feed and Separator Rolls.

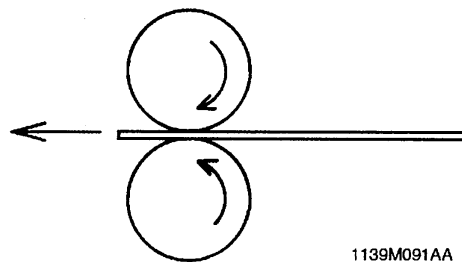
### 1. At the Time of Double Feed:

The top sheet of paper is fed into the copier by the Feed Roll. Since the coefficient of friction between the top and second sheet of paper is smaller than that between the second sheet of paper and the Separator Roll, the two sheets of paper slip and the second sheet of paper is not fed into the copier. The driving force of the Feed Roll is at this time consumed by the two slipping sheets of paper and not transmitted to the Separator Roll which is stopped by its Torque Limiter. In other words, the force of the Torque Limiter is greater than the driving force of the Feed Roll as it is transmitted through the two sheets of paper.



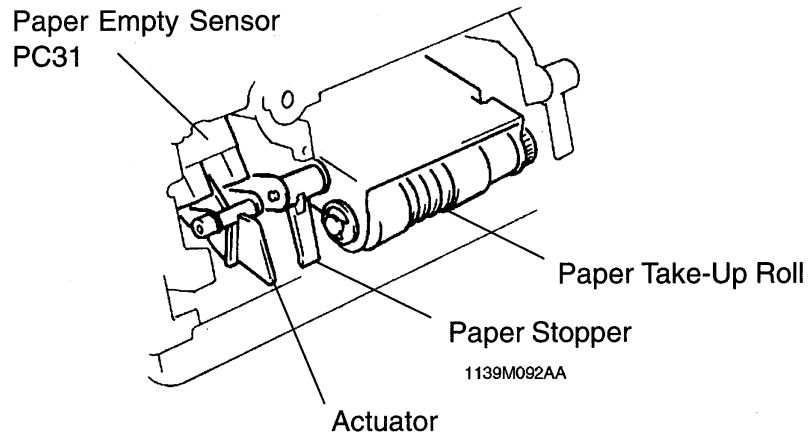
### 2. Normal Feeding:

The friction coefficient on the top side of the paper is equivalent to that on the underside. Hence, the driving force of the Feed Roll is directly transmitted to the Separator Roll through the paper, causing the Separator Roll to be turned by the Feed Roll. In other words, the force of the Torque Limiter is smaller than the driving force of the Feed Roll as it is transmitted through the paper.



**25-3. Paper Empty Detection**

The Multi Bypass Table is equipped with Paper Empty Sensor PC31 which detects a sheet of paper at the manual bypass port.



	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC31	PWB-A PJ11A-6	L	H	30-H

## 26 ORIGINAL COVER ANGLE DETECTION

Original Cover Detecting Sensor PC111 detects the angle of the Original Cover as it is raised. The following control is provided.

Original Cover raised to an angle of 15° or more:

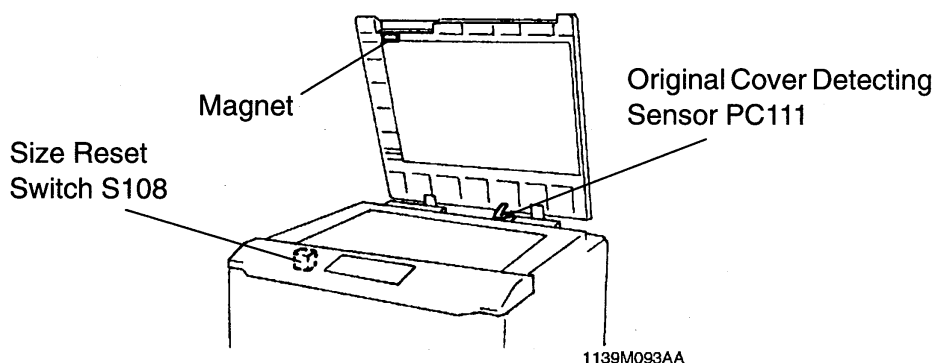
The size of the original is read by the Original Size Detecting Sensors.

Original Cover raised to an angle of less than 15°:

When PC111 is activated, the master CPU of PWB-A latches the original size data transmitted by Original Size Detecting Board UN2. As soon as Size Reset Switch S108 is turned ON, the size data is affirmed and the paper size is shown on the control panel.

The paper size selected is reset when S108 is turned OFF.

\*The Original Cover Angle Detecting System is available only on copiers for Japan, ROC, South Africa, Singapore, Malaysia, Indonesia, Saudi Arabia, Curacao, Australia, and New Zealand. The copiers for any other areas are not provided with the Original Size Detecting Sensors and S108 is used for the detection of raising and lowering an Automatic/Duplexing Document Feeder (option).



	Control Signal	Blocked	Unblocked	WIRING DIAGRAM
PC111	PWB-A PJ22A-6	L	H	20-O

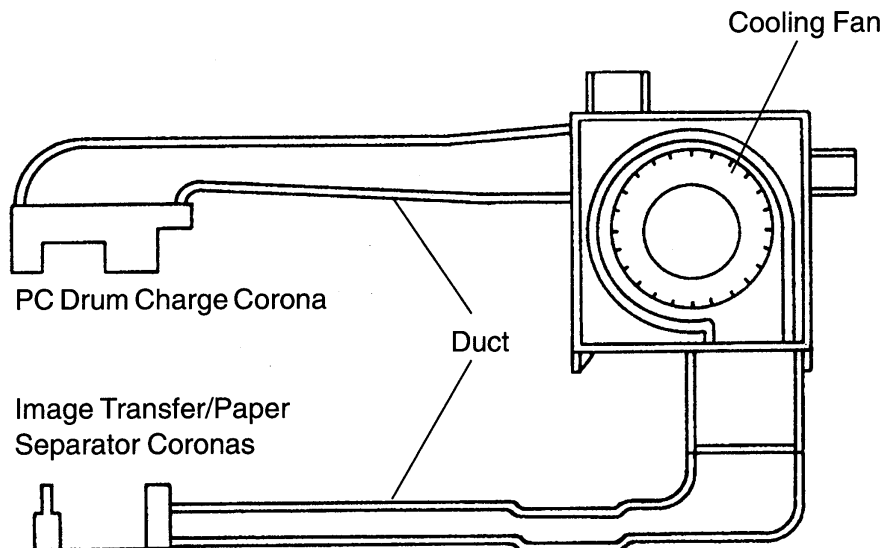
  

	Control Signal	ON	OFF	WIRING DIAGRAM
S108	PWB-A PJ14A-3	L	H	20-P

## 27 COOLING FAN

Ozone produced by the PC Drum Charge Corona and Image Transfer/Paper Separator Coronas is drawn out of the copier by Cooling Fan Motor M9 and absorbed by the Ozone Filter.

M9 is turned either at high or low speed. It turns at high speed while Main Drive Motor M2 is being energized. It also turns at high speed for 3 seconds after the Power Switch has been turned ON. Otherwise, it turns at low speed at all times.



1151M009AA

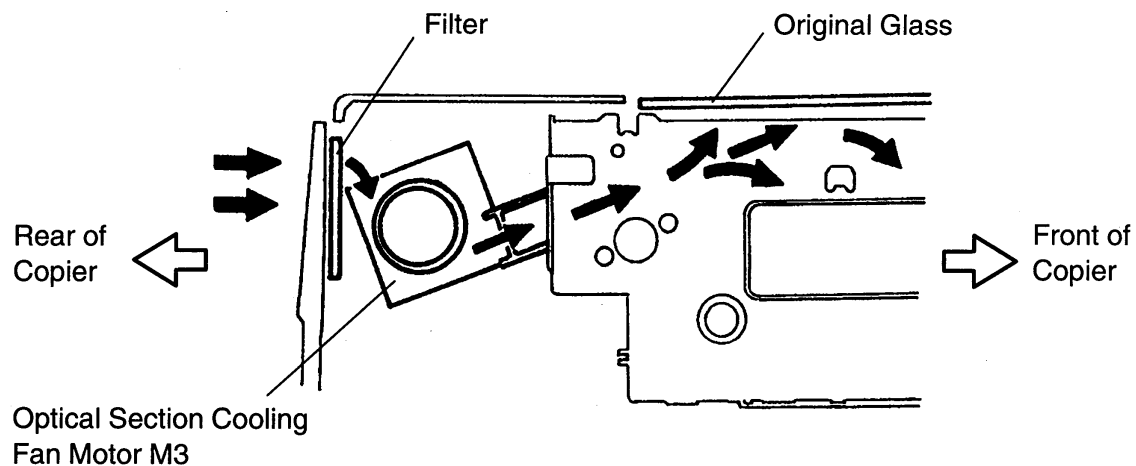
	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M9	PWB-A PJ6A-9	H	L	2-O

## 28 OPTICAL SECTION COOLING FAN

Optical Section Cooling Fan Motor M3 draws outside air into the copier and blows it against the Original Glass which is heated by lit Exposure Lamp LA1.

The Filter at the intake port of the Fan prevents dust and dirt from entering the Optical Section of the copier.

M3 turns only while Main Drive Motor M2 is being energized.



1149M024AA

	Control Signal	Energized	Deenergized	WIRING DIAGRAM
M3	PWB-A PJ32A-2	L	H	20-O

## 29 MEMORY BACKUP

IC1 (RAM) of RAM Board PWB-R connected to Main Control Board PWB-A stores the setting/adjustment values set in the Tech. Rep. Modes as well as the counter counts. Backup Battery BAT1 is mounted on PWB-R to prevent the contents of memory from being lost when the power cord is unplugged or PWB-R removed from the copier. BAT1 requires a voltage of 2V or more to retain the contents of memory.

### **Important**

As we noted above, the RAM stores critical data. If PWB-R has been replaced with a new one, memory must first be cleared and then all settings be made again. It should also be noted that PWB-R should not be replaced at the same time when PWB-A is replaced.



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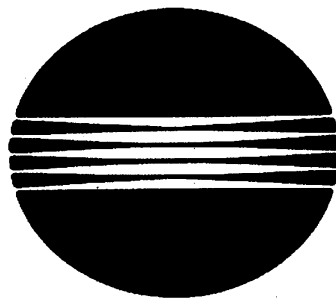
Use of this manual should  
be strictly supervised to  
avoid disclosure of  
confidential information.

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# EP2051

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## DIS/REASSEMBLY, ADJUSTMENT



MINOLTA



**◆ For the Utmost safety ◆****Warning**

- For replacement parts, use the genuine parts with their part numbers specified in the parts manual. Use of a wrong part could cause an overload or dielectric breakdown, resulting in an electric shock or fire.
- Replace a blown fuse or thermal fuse with the corresponding genuine part with its part number specified in the parts manual. Use of a fuse with a different rating or one with the same rating but of a different type can result in a fire.  
Especially when a thermal fuse blows frequently, the thermal control system is probably faulty.  
Be sure to take necessary action.
- Before attempting to disassemble the machine, be sure to unplug its power cord. The machine contains a high voltage unit and a circuit with a large current capacity that may cause an electric shock or burn from sparking.  
The machine also contains quick moving parts, which could injure a person.  
If the machine uses a laser, a person can lose his/her eyesight by a laser beam leak.
- Wherever feasible, keep the covers and parts mounted when energizing the machine.  
If it is absolutely necessary to energize the machine with its cover removed, do not touch an exposed part that is being charged and use care not to allow your clothing to be caught by a timing belt, gear, or other moving part.
- Do not leave the machine unattended while it is being energized.

**Caution**

- To actuate an interlock switch with a cover removed or opened, be sure to use the interlock switch actuating jig. Use of folded paper can damage the interlock switch mechanism.



## Caution



- A high voltage is being applied to the part marked with the symbol shown on the right. Touching it can cause an electric shock. Be sure to unplug the power cord when servicing this part or other parts near it.
- When the machine is energized with any of its covers removed, never use a flammable spray near it, as a fire can result.
- Make sure that correct screws (diameter and length of the screw, binding/tapping screws) are used in the correct places when assembling parts. If a wrong screw is used, a short insulating distance could result. It could also result in collapsed threads, which provides only a poor grounding connection, resulting in an electric shock.
- A toothed washer and spring washer, if used originally, must be reinstalled. If they are left out, a contact failure results, causing an electric shock or fire.
- Replace a lithium cell only with one having the part number specified in the parts manual. An explosion could result if the cell is installed with wrong polarity or a wrong cell is installed.  
Dispose of a used lithium cell according to the applicable local regulations. Never throw it away or abandon it on the user's premises.

### ◆ Other Precautions ◆

- While the machine is being energized, do not unplug or plug in a connector on a PWB or relay harness.
- Since the Magnet Roller of the Imaging Unit generates a strong magnetic force, do not bring a CRT, watch, floppy disk, or magnetic card near it.
- Use of an air gun or vacuum generates static electricity which can cause the ATDC Sensor and associated parts to break down. Be sure therefore to use a blower brush or cloth to clean these parts. If a unit is to be cleaned, be sure to remove the sensors in advance.
- MOS ICs are susceptible to static electricity. When handling a PWB loaded with MOS ICs, follow precautions given in "INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs."
- The PC Drum is highly delicate. When handling the PC Drum, follow the precautions given in "HANDLING OF THE PC DRUM."
- To reassemble, reverse the order of disassembly unless otherwise specified.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ADVARSEL!: Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandoren.

# CONTENTS

## 1 SERVICE INSTRUCTIONS

- 1-1. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS ..... D-1
- 1-2. INSTRUCTIONS FOR HANDLING THE PWBs  
WITH MOS ICs ..... D-2
- 1-3. HANDLING OF THE PC DRUM ..... D-2
- 1-4. PARTS WHICH MUST NOT BE TOUCHED ..... D-4

## 2 DISASSEMBLY/REASSEMBLY

- 2-1. DOORS, COVERS AND EXTERIOR PARTS:  
IDENTIFICATION AND REMOVAL PROCEDURES ..... D-5
- 2-2. REMOVAL OF PWBs ..... D-8
- 2-3. BELT INSTALLATIONS ..... D-10
- 2-4. PAPER TAKE-UP/TRANSPORT SECTIONS ..... D-11
  - (1) Removal of the Paper Take-Up Unit ..... D-11
  - (2) Removal of the Paper Take-Up Rolls ..... D-11
  - (3) Cleaning of the Paper Take-Up Rolls ..... D-11
  - (4) Removal of the Suction Unit ..... D-12
  - (5) Disassembly of the Suction Unit ..... D-12
  - (6) Replacement of the Paper Lifting Springs  
(2nd Drawer) ..... D-13
  - (7) Disassembly of the Multi Bypass Table ..... D-14
- 2-5. OPTICAL SECTION ..... D-19
  - (1) Removal of the Lens Drive Cable ..... D-19
  - (2) Winding of the Lens Drive Cable ..... D-20
  - (3) Removal of the Scanner Drive Cable ..... D-21
  - (4) Winding of the Scanner Drive Cable ..... D-23
  - (5) Removal of the Scanner ..... D-25
  - (6) Cleaning of the Exposure Lamp ..... D-25
  - (7) Cleaning of the 1st/2nd/3rd Mirrors ..... D-25
  - (8) Cleaning of the Lens and 4th Mirror ..... D-25
  - (9) Cleaning of the Optical Section Cooling Fan Filter ..... D-26
- 2-6. IMAGING UNIT ..... D-27
  - (1) Disassembly, Cleaning, Replacement and Starter  
changing of the Imaging Unit ..... D-27
    - Replacement of the PC Drum ..... D-27
    - Replacement of the Toner Scattering Prevention  
Plate ..... D-27
    - Cleaning of the Doctor Blade ..... D-28
    - Replacement of the Cleaning Blade ..... D-28
    - Cleaning of the PC Drum Paper Separator Fingers ..... D-29
    - Cleaning of the Ds Positioning Collars ..... D-29
    - Cleaning of the Paper Dust Remover ..... D-29

# CONTENTS

• Cleaning of the Upper and Lower Synchronizing Rollers .....	D-29
• Cleaning of the Magnet Roller Lower Antispill Seal and Antispill Plate .....	D-30
• Replacement of the Toner Antispill Mylar .....	D-30
(2) Cleaning of the Main Erase Lamp LA2 .....	D-31
(3) Cleaning of Image Erase Lamp LA3 .....	D-31
2-7. PC DRUM CHARGE CORONA/IMAGE TRANSFER CORONA UNIT .....	D-33
(1) Cleaning of the PC Drum Charge Corona Housing .....	D-33
(2) Cleaning of the PC Drum Charge Corona Grid Mesh .....	D-33
(3) Cleaning of the Comb Electrode .....	D-34
(4) Cleaning of the Image Transfer/Paper Separator Coronas Wires .....	D-34
(5) Cleaning of the Image Transfer/Paper Separator Coronas Housing .....	D-34
(6) Cleaning of the Lower Pre-Image Transfer Guide Plate .....	D-35
(7) Replacement of the Ozone Filter .....	D-35
2-8. Fusing Unit .....	D-35
(1) Removal of the Fusing Unit .....	D-35
(2) Cleaning of the Pre-Fusing Guide Plate .....	D-36
(3) Removal of the Upper Fusing Roller .....	D-36
(4) Cleaning of the Upper Fusing Roller .....	D-38
(5) Cleaning of the Upper Paper Separator Fingers .....	D-38
(6) Cleaning of Fusing Thermistors 1 & 2 .....	D-39
(7) Cleaning of the Fusing Thermoswitch .....	D-39
(8) Removal of the Oil Roller .....	D-39
(9) Cleaning of the Oil Roller .....	D-39
(10) Removal of the Lower Fusing Roller .....	D-40
(11) Cleaning of the Lower Fusing Roller .....	D-40
(12) Cleaning of the Lower Paper Separator Fingers .....	D-40
(13) Disassembly of the Exit/Duplex Switching Unit (Optional) .....	D-40

3-1. JIGS AND TOOLS USED .....	D-44
3-2. ADJUSTMENT REQUIREMENT LIST .....	D-45
3-3. ADJUSTMENT OF SWITCH .....	D-46
(1) Adjustment of Front Door Interlock Switch S21 .....	D-47
3-4. ELECTRICAL/IMAGE ADJUSTMENTS .....	D-48
(1) Adjustment of the Maximum Exposure Lamp Voltage for the Manual Mode .....	D-48

# CONTENTS

(2) Adjustment of the Optimum Exposure Setting in the Manual Mode .....	D-51
(3) Adjustment of the Optimum Exposure Setting in the Auto Mode .....	D-52
(4) Adjustment of the ATDC Sensor .....	D-53
(5) Adjustment of the Aperture Blades .....	D-54
(6) Adjustment of the Manual Bypass Table Reference Position .....	D-55
(7) Adjustment of the 1st/2nd Drawer Reference Position .....	D-56
(8) Adjustment of the Paper Lifting Plate Springs (2nd Drawer) .....	D-57
(9) Adjustment of the Leading Edge Registration .....	D-58
• Full Size .....	D-58
• Enlargement .....	D-60
• Reduction .....	D-61
(10) Adjustment of the Image Leading Edge Erase Width .....	D-62
(11) Adjustment of the Image Erase Lamp Position .....	D-64
3-5. OTHER ADJUSTMENTS .....	D-65
(1) Adjustment of the Scanner/Mirrors Carriage Position .....	D-65
(2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller .....	D-66
(3) Adjustment of the PC Drum Paper Separator Fingers Position .....	D-67
(4) Adjustment of the Original Size Detecting Board .....	D-68

4	MISCELLANEOUS
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4-1. INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION) .....	D-69
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# 1 SERVICE INSTRUCTIONS

## 1-1. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS

Observe the following precautions whenever servicing the copier.

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly.  
If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- Do not plug in or unplug print jacks on the PWB or connect or disconnect the PWB connectors while power is being supplied to the copier.
- Do not use flammable spray around the copier in operation.
- The Magnet Roller of the Imaging Unit generates strong magnetic force. Do not bring it near a cathode-ray tube or watch.
- The lithium cell in RAM Board PWB-R can burst. At replacement, make sure of the correct polarity and do not change it or create a closed circuit.  
A used lithium cell should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.
- When handling the PWBs with MOS ICs, observe "Instructions for Handling the PWBs with MOS ICs."
- When handling the PC Drum, observe precautions given in "Handling of the PC Drum."
- Note that replacement of a PWBs may call for readjustments or resetting of particular items.
- Use the right screw in the right place at reassembly. Note that some are longer and some are thicker than others.
- A toothed washer is used with the screw that secures the ground wire to ensure positive conduction. Do not forget to insert this washer at reassembly.
- To reassemble the copier, reverse the order of disassembly unless otherwise specified.
- If it becomes necessary to replace the thermal fuse or any other fuse mounted on a board, be sure to use one of the rating marked on the blown fuse.  
Always note the rating marked on the fuse, as the rating and mounting site or number used are subject to change without notice.
- Do not pull out the Toner Hopper while the Toner Bottle is turning, as a damaged Toner Replenishing Motor or locking mechanism could result.  
If the copier is to be run with the Front Door swung down, make sure that the Toner Hopper is in the locked position.

**CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

## 1-2. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs

The following precautions must be observed when handling P.W. Boards with MOS (Metal Oxide Semiconductor) ICs.

### During Transportation/Storage:

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.

### During Replacement:

- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- Before plugging connectors into the Board, make sure that the power cord has been unplugged from the power outlet.

### During Inspection:

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the PW Board, be sure to ground your body.

## 1-3. HANDLING OF THE PC DRUM

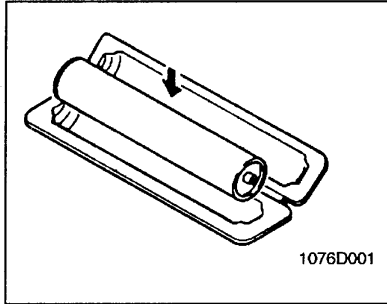
### During Transportation/Storage:

- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between  $-20^{\circ}\text{C}$  and  $+40^{\circ}\text{C}$ .
- In summer, avoid leaving the PC Drum in a car for a long time.

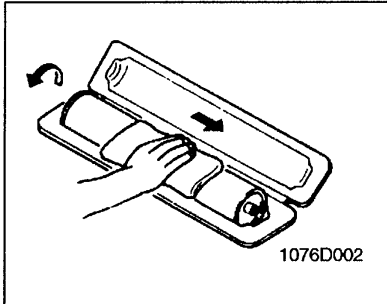
### Handling:

- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its container or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.

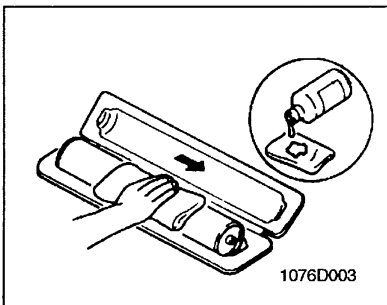


1. Place the PC Drum into one half of its container.



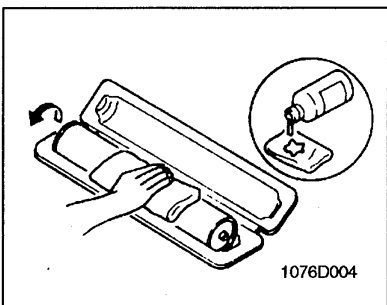
2. Gently wipe the residual toner off the surface of the PC Drum with a dry, dust-free cotton pad.
  - a) Rotate the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
  - b) Rotate the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the dust-free cotton pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

\* At this time, always use a CLEAN face of the dry dust-free cotton pad until no toner is evident on the face of the Pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused dust-free cotton pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

\* Never move the pad back and forth.



4. Using the SAME face of the pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

#### NOTES

- The Organic Photoconductor Drum is softer than CdS and Selenium Drums and is therefore susceptible to scratches.
- Even when the PC Drum is only locally dirtied, wipe the entire surface.
- Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.
- If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.



**1-4. PARTS WHICH MUST NOT BE TOUCHED****(1) Screws****Purpose of Application of Red Paint**

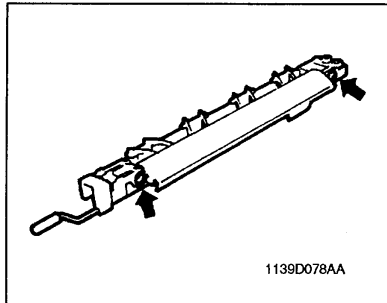
Red paint is applied to the screws which cannot be readjusted, set, or reinstalled in the field. The basic rule is not to remove or loosen the screws to which red paint is applied. In addition, be advised that, if two or more screws are designated as those which must not be touched on a single part, only one representative screw may be marked with red paint.

**(2) Variable Resistors on Board**

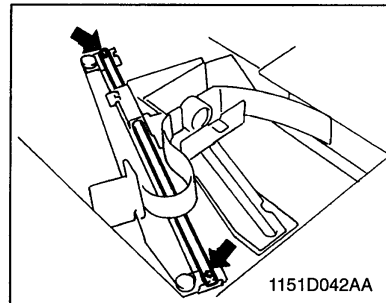
Do not turn the variable resistors on boards for which no adjusting instructions are given in "ADJUSTMENT."

**(3) Other Screws**

Lower Pre-Image Transfer  
Guide Plate (2 screws)



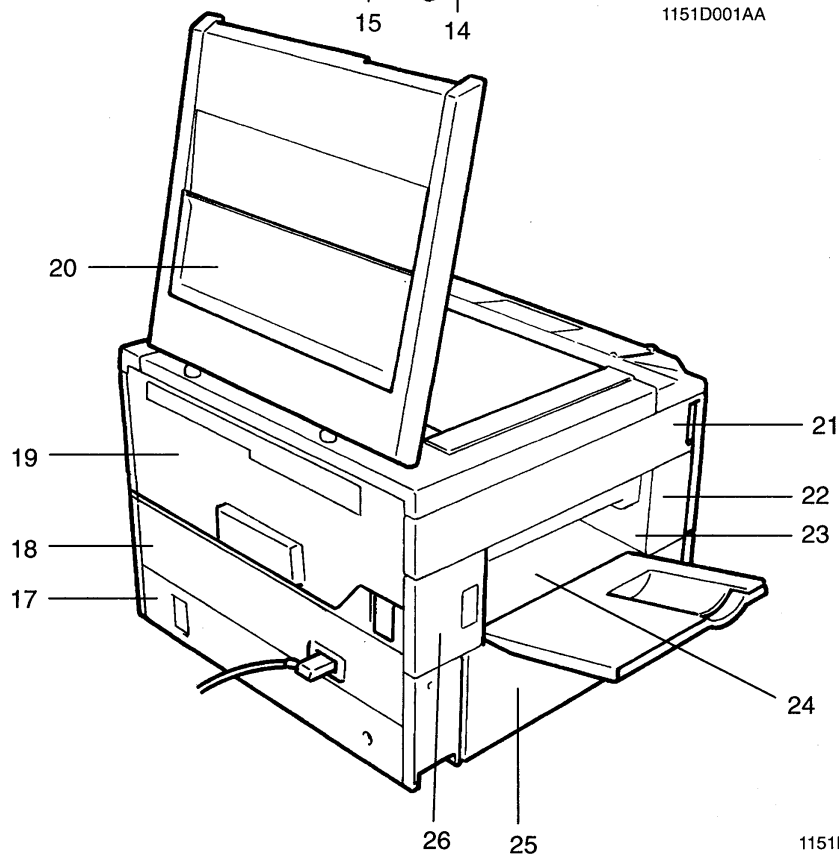
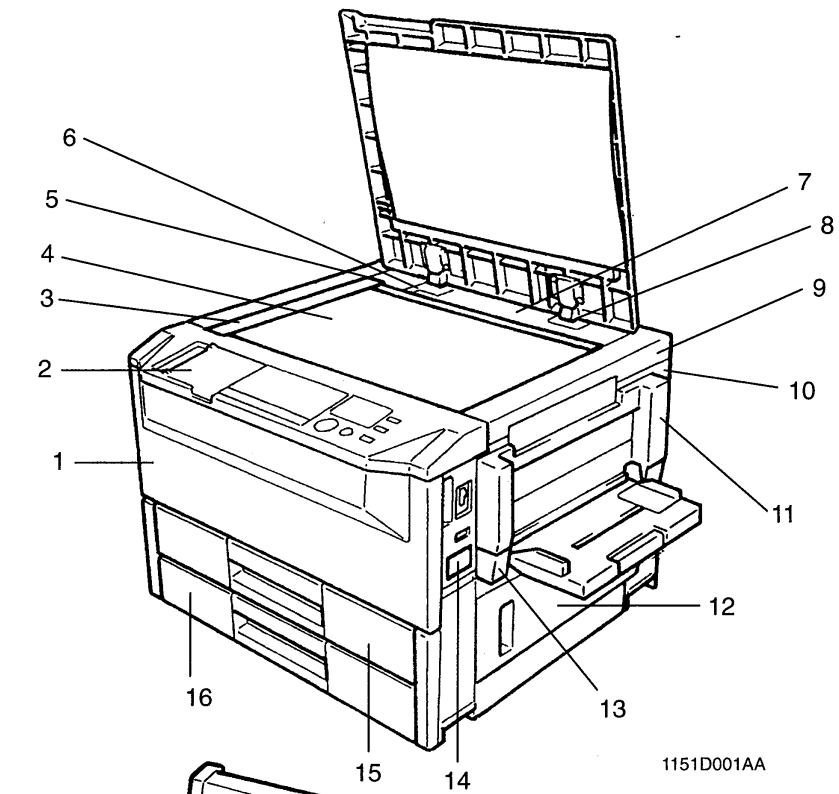
Lens Rail height  
setting screws (2)



## 2 DISASSEMBLY/REASSEMBLY

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### 2-1. DOORS, COVERS AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES



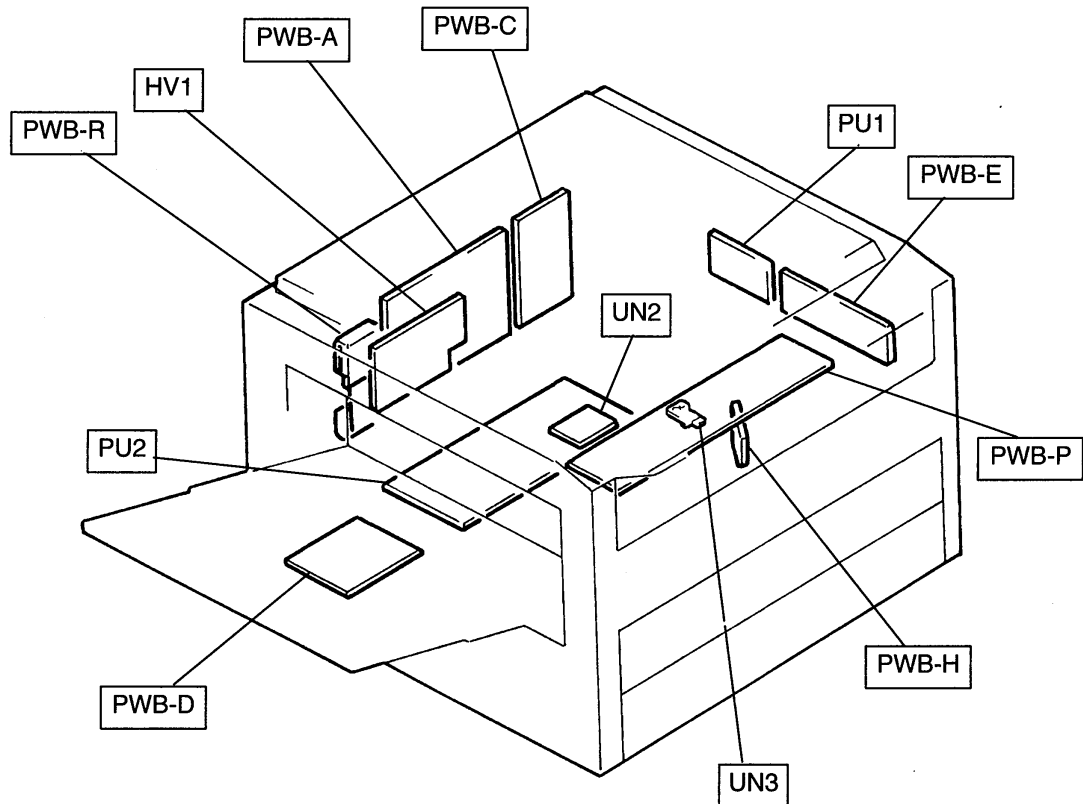
No.	Part Name	Removal Procedure
1	Front Door	Swing down No. 1. → Remove one screw that secures the Belt. → Remove two screws that secure the Front Door (only on one side). → Slide the Door to the side from which the screws have been removed.
2	Control Panel	Swing down No. 1. → Remove No. 9. → Release and swing up the Upper Half of the copier. → Remove No. 21. → Remove two screws and loosen another five screws that secure the control panel.
3	Original Scales	Remove two screws that secure the Scales.
4	Original Glass	
5	Rear Upper Cover (Small)	Remove the Ornament Cover. → Remove one screw that secures the Rear Upper Cover (small).
6	Left Hinge Cover	Remove the Original Cover. → Remove one screw that secures the Left Hinge Cover.
7	Rear Upper Cover	Remove the Original Cover. → Remove No. 6, 8 and 9. → Remove one screw that secures No. 7.
8	Right Hinge Cover	
9	Upper Right Cover	
10	Right Cover	Remove No. 11. → Remove No. 9. → Remove two screws that secure the Right Cover.
11	Middle Right Cover	Remove three screws that secure the Middle Right Cover.
12	Right Door	Open the Right Door and remove it by lifting it up.
13	Multi Bypass Table Mounting Bracket	Remove two screws that secure the Multi Bypass Table Mounting Bracket.
14	Counter Cover	Remove the Counter Cover by snapping it off.
15	1st Drawer	Slide out the Drawer and remove one screw that secures the Stopper at the rear left corner.
16	2nd Drawer	
17	Lower Rear Cover	Remove two screws that secure the Lower Rear Cover.
18	Rear Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove two screws that secure the Rear Cover.
19	Upper Rear Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove three screws that secure the Upper Rear Cover.
20	Original Cover	_____

Remove the Original Cover by pulling it up.

No.	Part Name	Removal Procedure
21	Upper Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove four screws that secure the Upper Left Cover.
22	Middle Front Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove one screw that secures the Middle Front Left Cover.
23	Front Exit Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 22. → Remove one screw that secures the Front Exit Cover.
24	Rear Exit Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 26. → Remove one screw that secures the Rear Exit Cover.
25	Lower Left Cover	Remove four screws that secure the Lower Left Cover.
26	Middle Rear Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove one screw that secures the Middle Rear Left Cover.

## 2-2. REMOVAL OF PWBs

- When removing a PWB, first go over "PRECAUTIONS FOR HANDLING THE PWBs" contained in SWITCHES ON PWBs and use the removal procedures given on the next page.
- Replacement of a PWB may call for readjustments or resetting of particular items.
- The removal procedures given on the next page omit the steps to unplug connectors and remove the PWB from the PWB supports.



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Symbol	Name	Removal Procedure
PWB-A	Master Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19.
PWB-C	Power Supply Board	
PWB-D	Noise Filter Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 17, 18, and 19. → Remove two screws and the Power Supply Assy.
PWB-E	Motor Drive Board	Open 1. → Remove 11. → Remove 9 and 10. → Remove the Multi Bypass Unit.
PWB-H	AE Sensor Board	Remove 3 and 4. → Remove the optical cover.
PWB-P	Control Panel	Open 1. → Remove 9. → Release and swing up the Upper Half of the copier. → Remove 21. → Remove seven screws that secure the Control Panel.
PWB-R	RAM Board	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19.
PU1	Power Supply Unit	Open 1. → Remove 11. → Remove 9 and 10. → Remove the Multi Bypass Unit.
PU2	DC Power Supply Unit	Open 1. → Release and swing up the Upper Half of the copier. → Remove 17, 18, and 19. → Remove two screws and the Power Supply Assy.
HV1	High Voltage Unit	Open 1. → Release and swing up the Upper Half of the copier. → Remove 19. → Remove PWB-A.
UN2	Original Size Detecting Board	Remove 3 and 4. → Remove the optical cover.
UN3	ATDC Sensor	Open 1. → Release and swing up the Upper Half of the copier. → Take out the IU. → Remove two screws that secure the Synchronizing Roller Guide Unit.

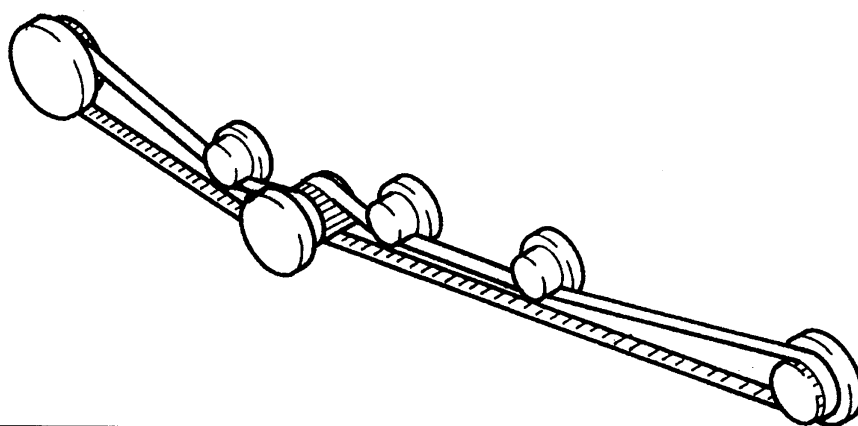
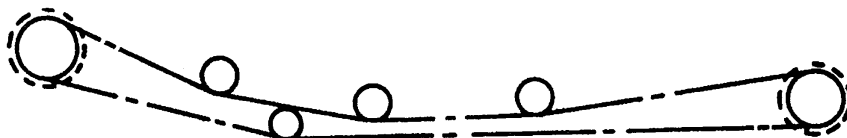
◆ Details of Readjustments/Resetting Involved In Replacement of PWB-R, UN2 and UN3.

- When PWB-R is replaced:  
Carry out Memory Clear and then make the Tech. Rep. Program, User's Choice, and Adjust settings again.
- When UN2 is replaced:  
Adjust the Original Size Detecting Board.
- When UN3 is replaced:  
Discard the developer which had been used until UN3 was replaced, charge the Developing Unit with fresh starter, and adjust ATDC.

## 2-3. BELT INSTALLATIONS

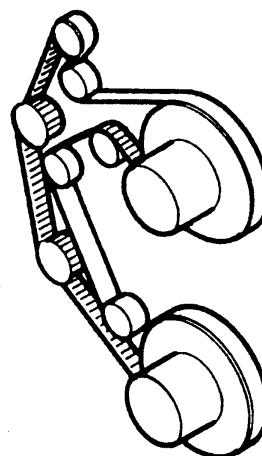
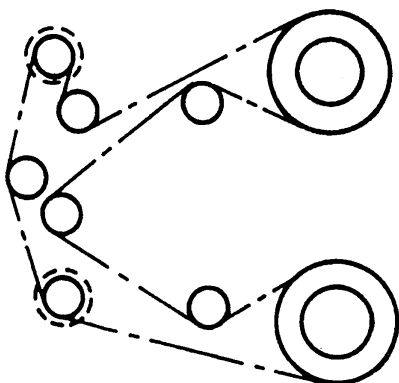
- Rear View

Drive/Suction Unit



Paper Take-Up Unit

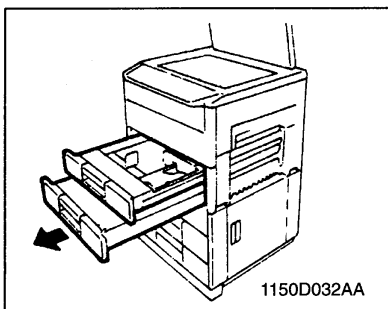
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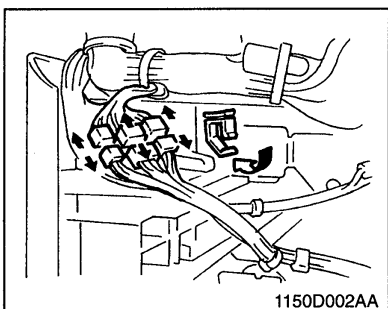
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## 2-4. PAPER TAKE-UP/TRANSPORT SECTIONS

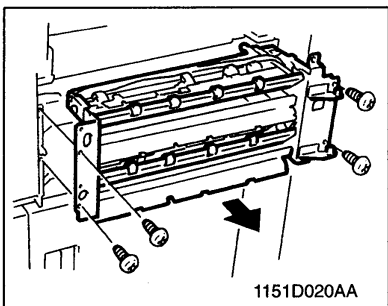
### (1) Removal of the Paper Take-Up Unit



1. Remove the Multi Bypass Table.  
See p. D-14. (Step 1 – 7)
2. Slide out the 1st and 2nd Drawers.

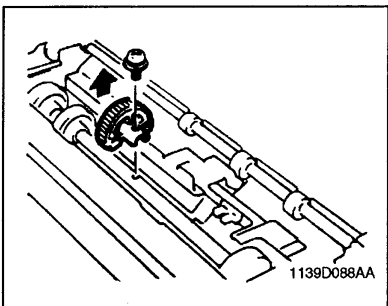


3. Remove the Rear and Rear Upper Covers.
4. Remove the Power Supply Assy.
5. Remove the harness from the wiring saddle.
6. Unplug the two connectors.



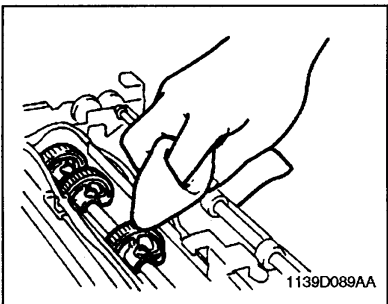
7. Remove four screws and the Paper Take-Up Unit.

### (2) Removal of the Paper Take-Up Rolls



1. Remove one screw to remove the Paper Take-Up Roll.

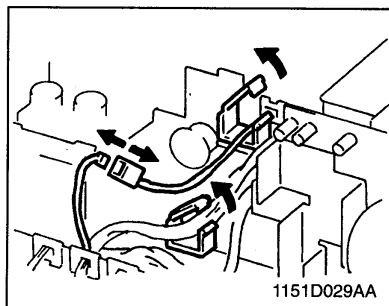
### (3) Cleaning of the Paper Take-Up Rolls



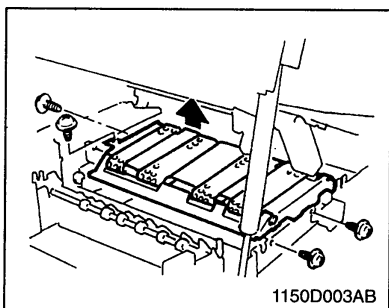
1. Remove the Paper Take-Up Unit from the copier.
2. Using a soft cloth dampened with alcohol, wipe clean the Paper Take-Up Rolls.



#### (4) Removal of the Suction Unit

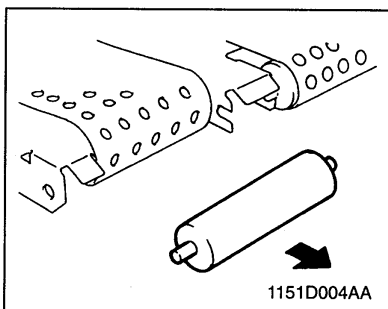


1. Remove the Fusing Unit. (See p. D-35.)
2. Unplug the Suction Fan connector and remove the wire from the clamp.

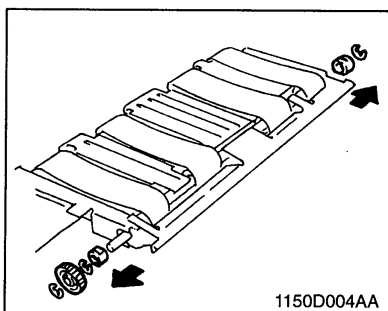


3. Remove four screws to remove the Suction Unit.

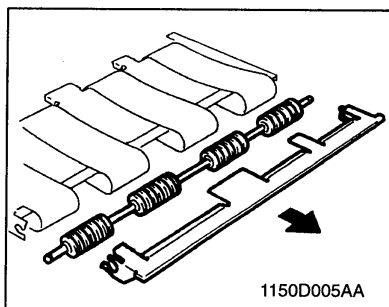
#### (5) Disassembly of the Suction Unit



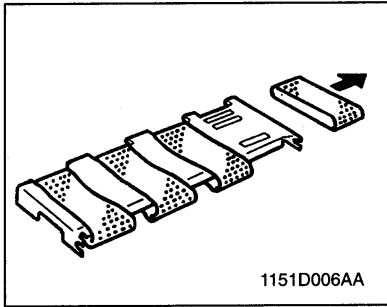
1. Remove the four Suction Drive Rolls and six bushings by pulling them in the direction of the arrow.



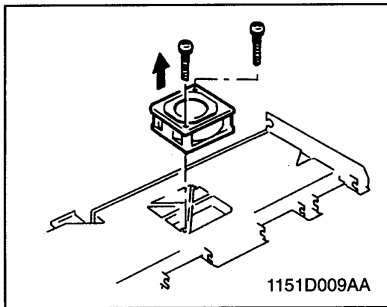
2. Snap off the three E-rings from the Suction Drive Unit.
3. Remove the gear and bushings.



4. Remove the Pre-Fusing Guide Plate.
5. Remove the Suction Drive Unit.



6. Remove the four belts.

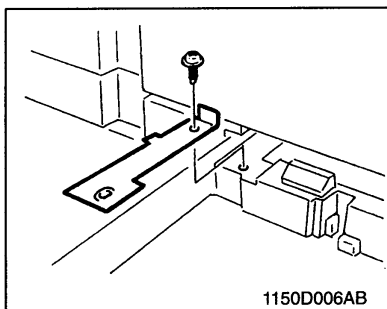
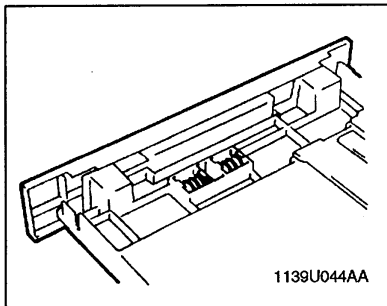


7. Remove the Suction Fan.

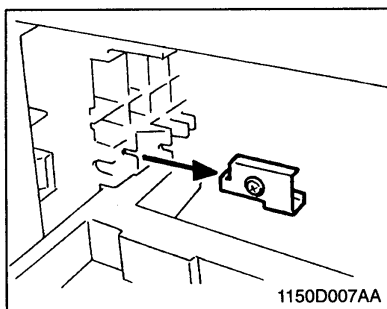
## (6) Replacement of the Paper Lifting Springs (2nd Drawer)

### ◆ Remark

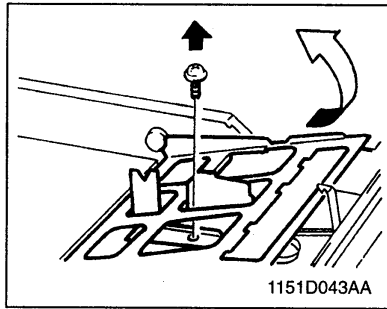
- The replacement springs are installed on the underside of the 2nd Drawer.



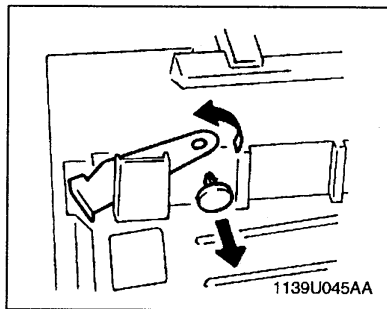
1. Remove the Stopper of the 1st Drawer and the 1st Drawer.



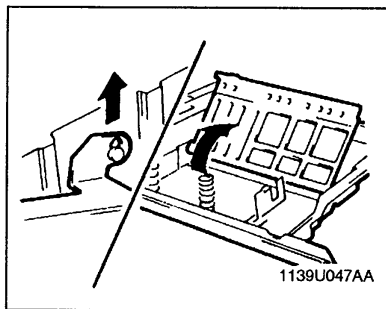
2. Remove the Stopper of the 2nd Drawer and the 2nd Drawer.



3. Remove one screw and the Edge Guide Unit.

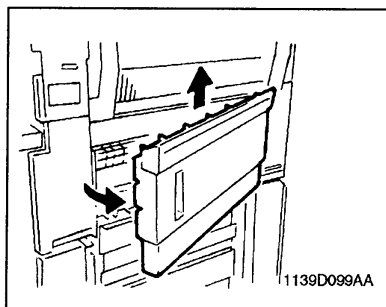


4. Remove the Front Separator Finger by removing its pin.

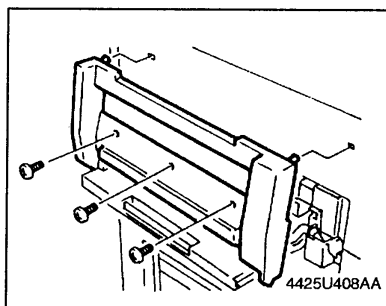


5. Raise the Paper Lifting Plate Unit and replace the Paper Lifting Springs. See p. D-57.

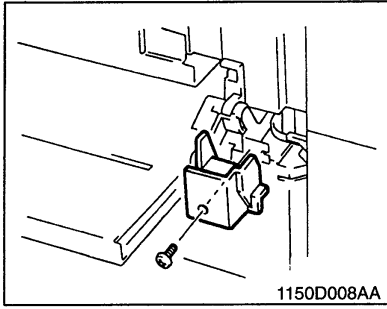
## (7) Disassembly of the Multi Bypass Table



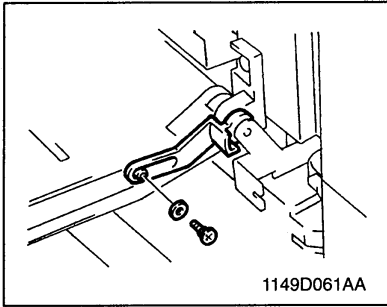
1. Remove the Right Door.



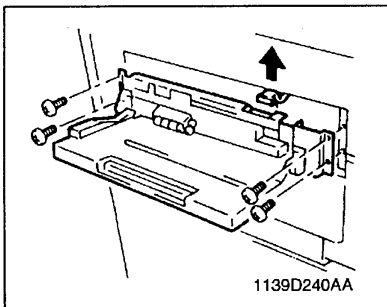
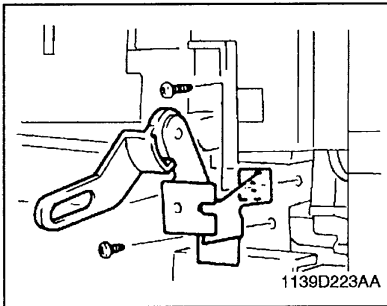
2. Remove three screws and the Middle Right Cover.



3. Remove one screw and the Small Cover.

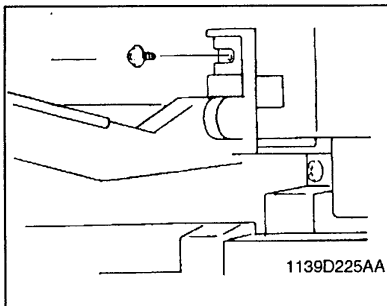


4. Remove three screws and the Guide Lever Unit.

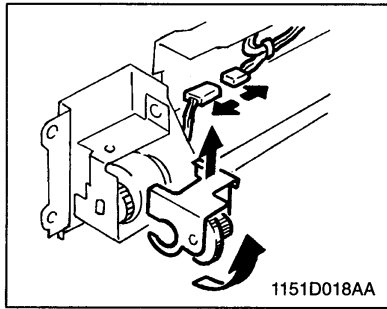


5. Remove four screws and the Multi Bypass Table Assy.

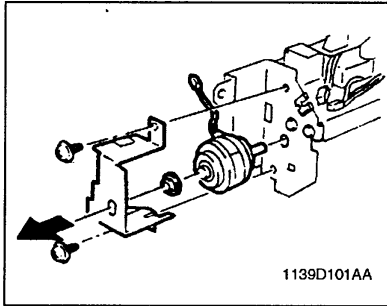
6. Unplug the Multi Bypass Table connector.



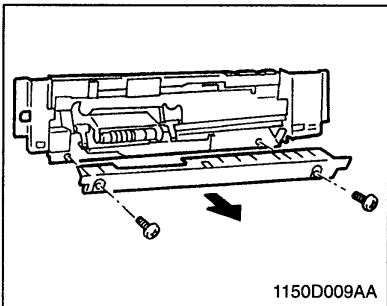
7. Remove one screw and the Multi Bypass Table.



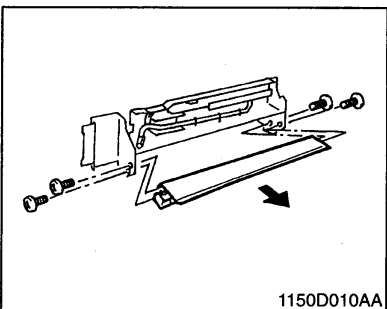
8. Unplug one connector.
9. Remove the Tension Unit.



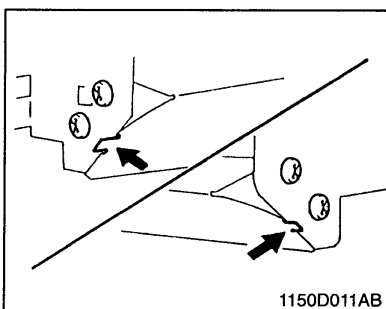
10. Remove two screws and the Clutch Mounting Bracket.



11. Remove two screws and the Lower Guide.

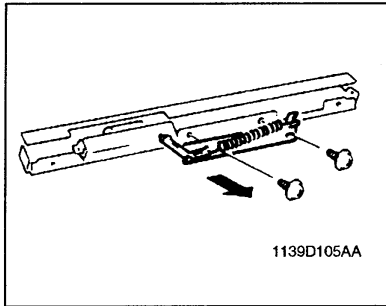


12. Remove four screws and the Separator Guide Plate Unit.

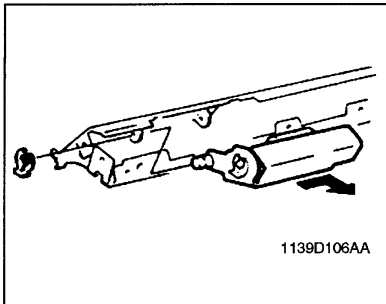


**NOTE**

*When reinstalling the Separator Guide Plate Unit, press the parts shown on the left up against the copier frame (both at front and rear).*



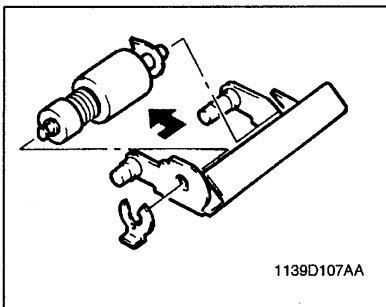
13. Remove two screws and the Lever.



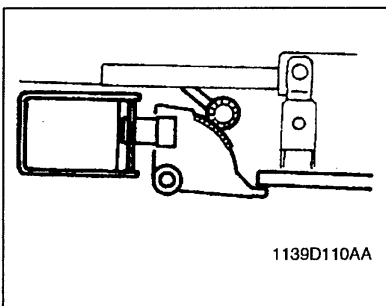
14. Snap off one C-clip and remove the Separator Unit.

**NOTE**

- Please use tweezers when reinstalling the C-clip.

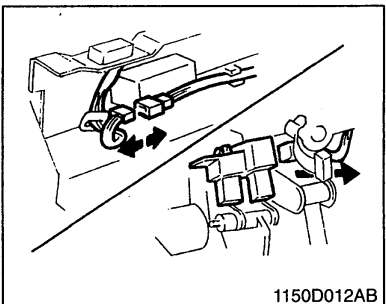


15. Snap off one C-clip and remove the Separator Roll Assy.



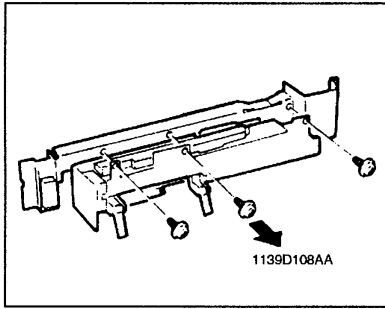
**NOTE**

Whenever the Solenoid Mounting Bracket is removed or reinstalled, make sure that the solenoid is in the deenergized position.

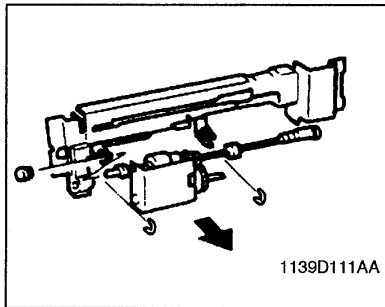


16. Unplug one solenoid connector.

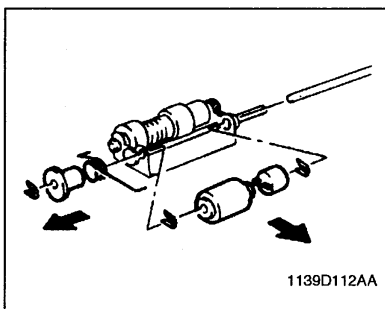
17. Unplug one photosensor connector and remove the harness from the clamp.



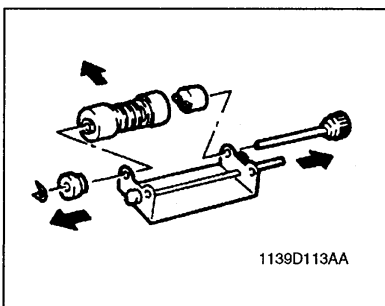
18. Remove three screws and the Solenoid Mounting Bracket.



19. Snap off the two C-clips to remove the Paper Take-Up Roll Unit.



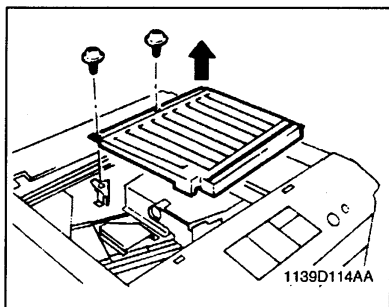
20. Snap off the three C-clips to remove the Paper Feed Roll.



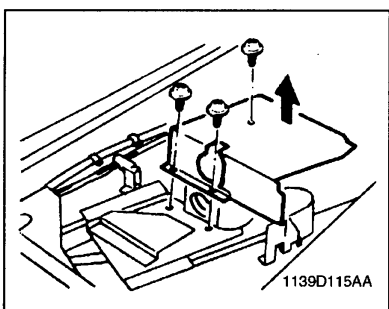
21. Snap off one C-clip and remove the Paper Take-Up Roll.

## 2-5. OPTICAL SECTION

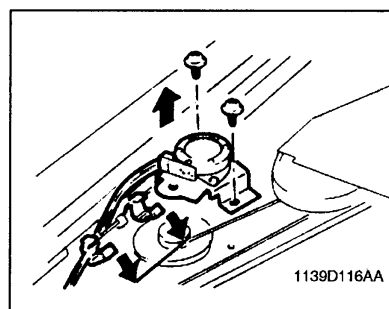
### (1) Removal of the Lens Drive Cable



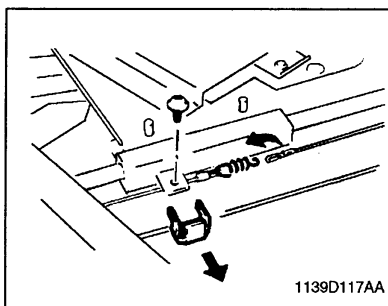
1. Remove two screws and the Optical Section Cover.



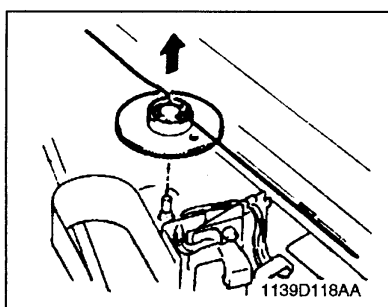
2. Remove three screws and the Lens Cover.



3. Remove two screws, two clamps and the Lens Motor Unit.



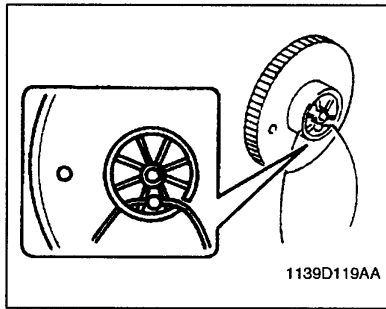
4. Remove one screw and the Cable Fixing Bracket.
5. Remove the spring.



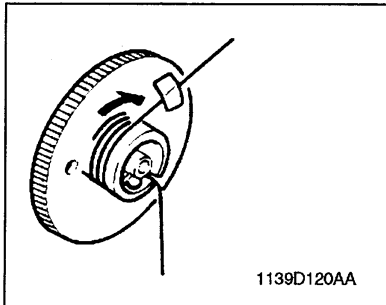
6. Remove the Cable Drive Gear and the Lens Drive Cable.



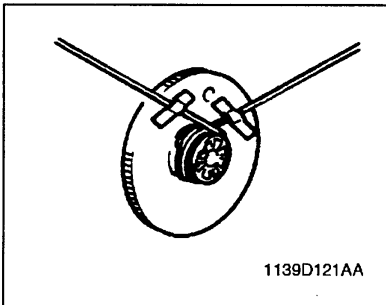
## (2) Winding of the Lens Drive Cable



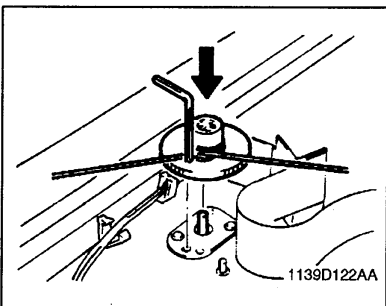
1. Hold the Cable Drive Gear in position with the Bead at the bottom.



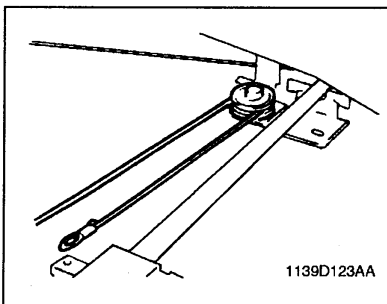
2. Wind the shorter length of the Cable three turns clockwise around the Cable Drive Gear, working from the back to the front side. Then tape it.



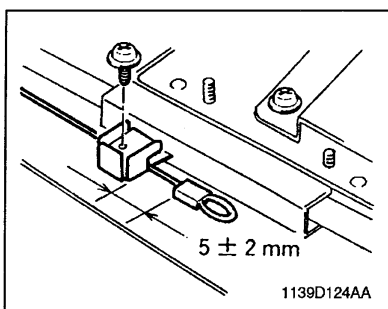
3. Wind the longer length of the Cable five turns counter-clockwise around the Cable Drive Gear, working from the front to back side. Then tape it.



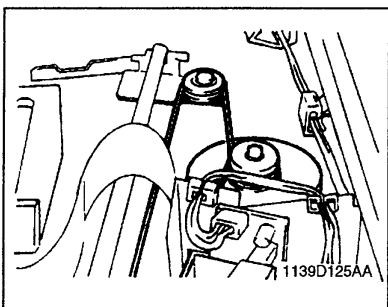
4. Slide the Cable Drive Gear onto its shaft and insert a wrench into the hole to position the Cable Drive Gear.



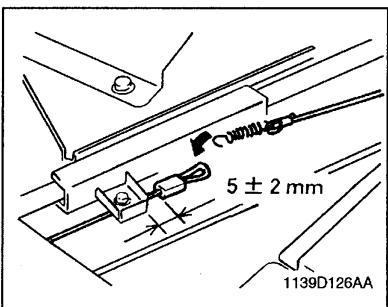
5. Pass the longer length of the Cable through the U-shaped hole in the Light Blocking Plate and wind it around the Pulley farther away from the Cable Drive Gear.



6. Temporarily secure the longer length of the Cable to the Cable Fixing Bracket, ensuring a distance of  $5 \pm 2$  mm for the dimension shown on the left.



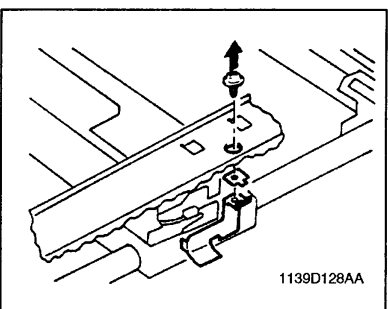
7. Wind the shorter length of the Cable around the Pulley which is nearer to the Cable Drive Gear.



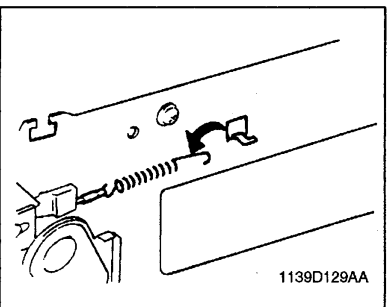
8. Hook the spring onto the shorter length of the Cable and pull it to hook onto the longer length of the Cable.
9. Check that the dimension noted in step 6 above measures  $5 \pm 2$  mm. Then, secure the Cable Fixing Bracket.
10. Remove the wrench and peel off the two pieces of tape.

### (3) Removal of the Scanner Drive Cable

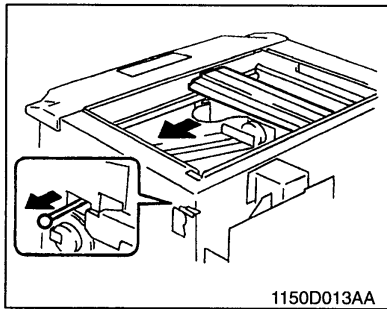
- Remove the Original Cover, Original Scales, and Original Glass.
- Remove the Middle Right, Upper Right, Right, Upper Left, and Upper Rear Covers.
- Remove the Left and Right Hinge Covers, Rear Upper Cover (Small), and Rear Upper Cover.



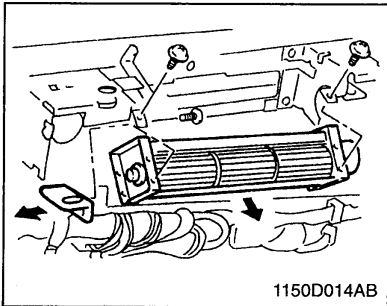
1. Align the Scanner with the rectangular hole in the upper copier frame and remove the screw from the Scanner Fixing Bracket.
2. Remove the Fixing Bracket.



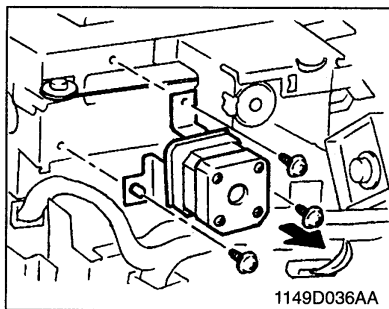
3. Unhook the spring to remove the shorter length of the Cable.



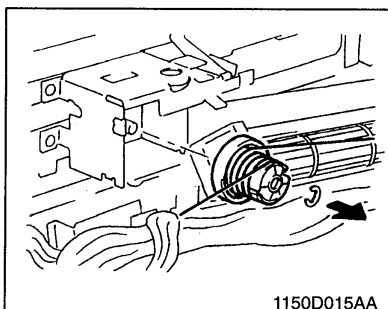
4. Move the 2nd/3rd Mirrors Carriage toward the Scanner Drive Gear so that the Cable slacks off and then remove the longer length of the Cable.
5. Remove four screws and PWB-A.



6. Remove two screws and the Optical Section Cooling Fan Motor M3.
7. Remove the ADF fixing bracket (one screw).



8. Remove three screws and the Scanner Motor M5.

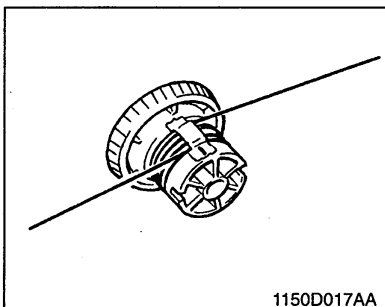
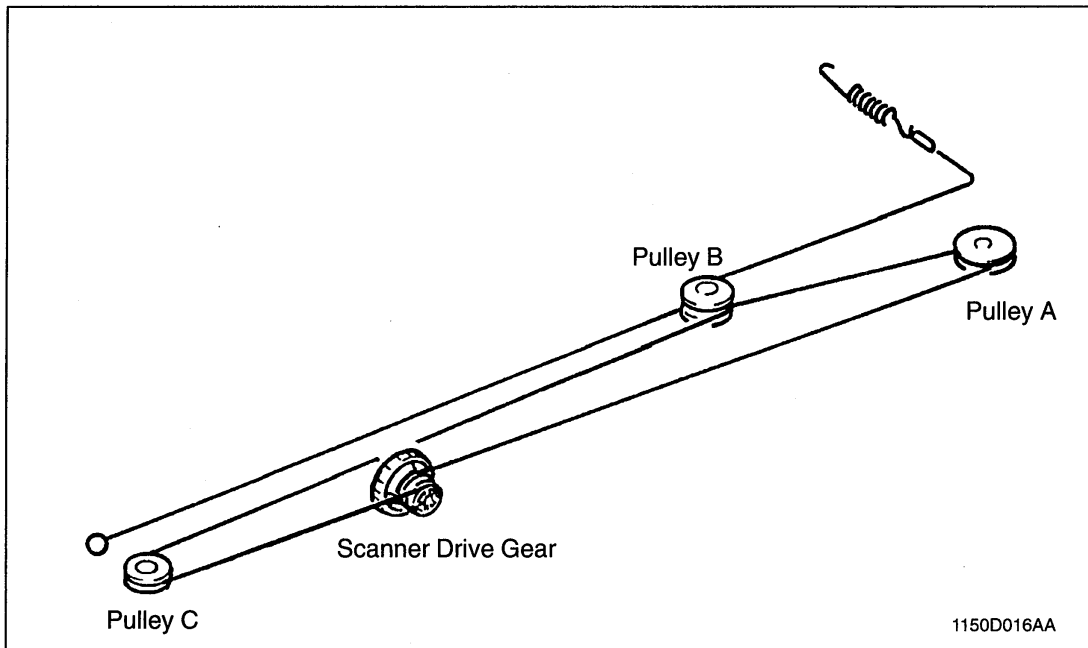


9. Snap off the E-ring and remove the Scanner Drive Pulley.

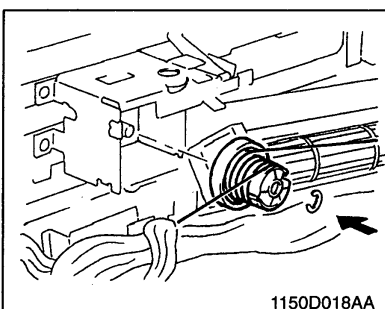
#### (4) Winding of the Scanner Drive Cable

◆ Remark

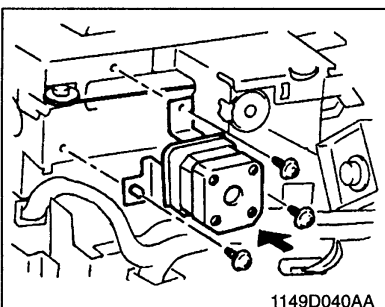
Whenever the Scanner Drive Cable has been rewound, be sure to make the "Adjustment of the Scanner/ Mirrors Carriage Position." See p. D-68.



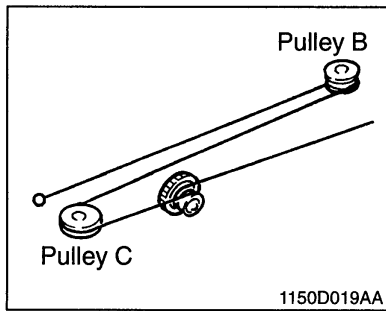
1. (With reference to the center of the entire length of the cable) Wind one length of the cable 5 times counterclockwise around the Pulley, starting with the end of the D-cut on the pulley shank and working from the front to the back side. Then, secure the cable with tape.



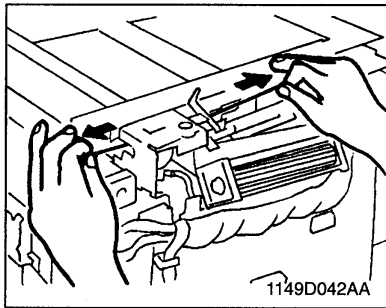
2. Mount the Cable Drive Pulley on the Pulley Shaft and fit the E-ring.



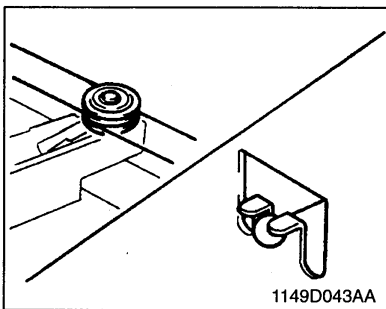
3. Refit and secure Scanner Motor M5 with three screws.



4. Hook the length of cable on the left (looking at the copier from the rear) around Pulleys C and B and secure it to the frame.

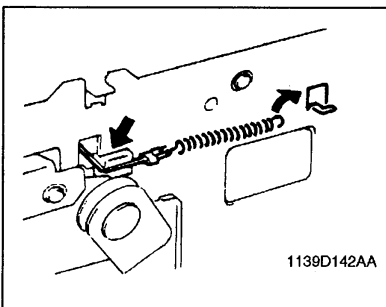


5. Peeling off the tape, pull the length of cable on the right (looking at the copier from the rear) and hook it onto Pulleys A and B.

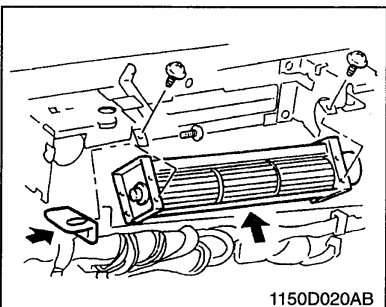


**NOTE**

- Hook the length of cable on the left (looking at the copier from the rear) into the lower groove in Pulley B. (Anchor the round terminal as illustrated on the left.)
- Hook the length of cable on the right (looking at the copier from the rear) into the upper groove in Pulley B.

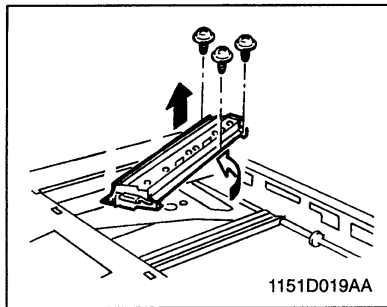


6. Fit the cable into the groove in the cable guide and hook the spring.
7. Mount PWB-A with four screws.



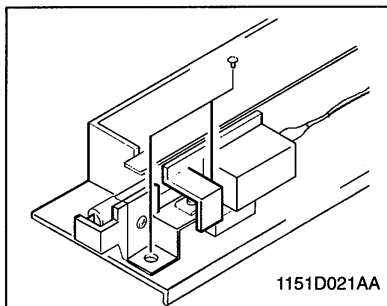
8. Fit the ADF fixing bracket with one screw.
9. Mount two screws and the M3.

## (5) Removal of the Scanner

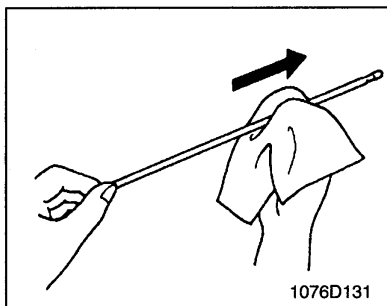


Turn the Scanner Drive Gear to move the Scanner to the right-hand side of the copier. Then, remove three screws and the Scanner.

## (6) Cleaning of the Exposure Lamp



1. Remove two screws and the Exposure Lamp Terminal.
2. Slide out the Exposure Lamp.

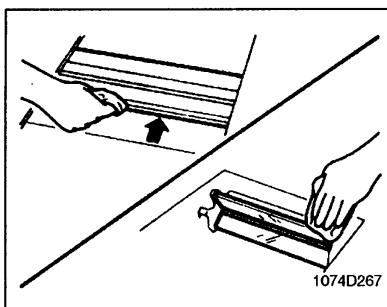


3. Using a soft cloth dampened with alcohol, clean the Lamp by wiping its surface gently in one direction.

### NOTE

*When reinstalling the Lamp, use care not to allow the protruding navel of the Lamp to hit against the Lamp Reflector and that the protruding navel points toward the opening in the Lamp Reflector.*

## (7) Cleaning of the 1st/2nd/3rd Mirrors

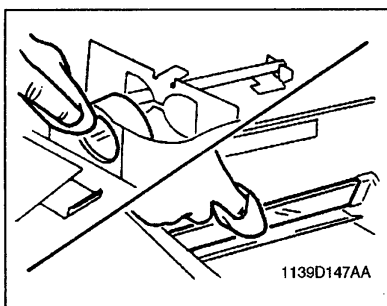


Turn the Scanner Drive Gear to move the Scanner away from the Mirrors. Then, wipe clean the 1st/2nd/3rd Mirrors with a soft cloth.

### NOTE

*An alcohol-dampened cloth may be used if the Mirror is seriously contaminated.*

## (8) Cleaning of the Lens and 4th Mirror

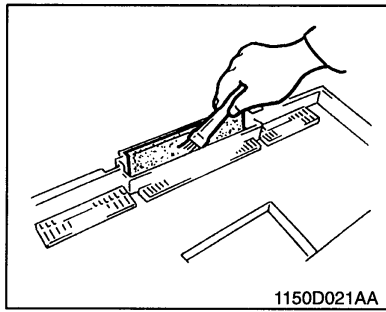


Gently dust off the surface of the Lens and 4th Mirror by using a dry soft cloth.

### NOTE

*An alcohol-dampened cloth may be used if the Lens or Mirror is seriously contaminated.*

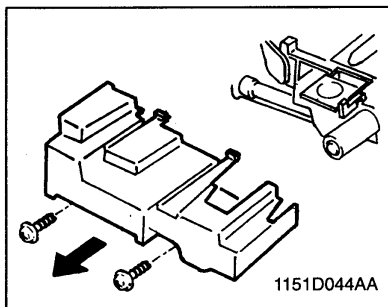
### **(9) Cleaning of the Optical Section Cooling Fan Filter**



1. Remove the Upper Rear Cover.
2. Clean the Filter with a brush or a vacuum cleaner.

## 2-6. Imaging Unit

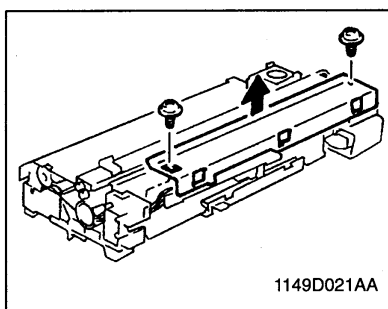
### (1) Disassembly, Cleaning, Replacement and Starter Changing of the Imaging Unit



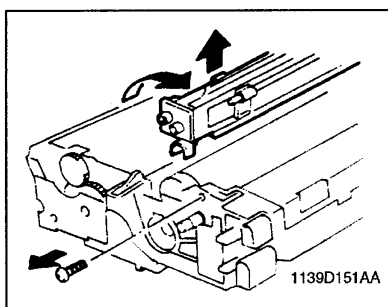
1. Remove the Imaging Unit from the copier.
2. Remove two screws and the Imaging Unit Cover.

#### NOTE

- When removing the Imaging Unit, do not hold onto the Main Erase Lamp end (as a deformed PC Drum Paper Separator Finger results).

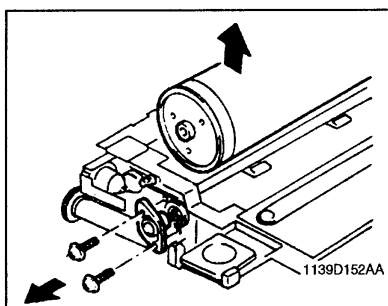


3. Remove two screws and the Main Erase Lamp.



4. Remove one screw and the PC Drum Charge Corona Unit.

#### Replacement of the PC Drum

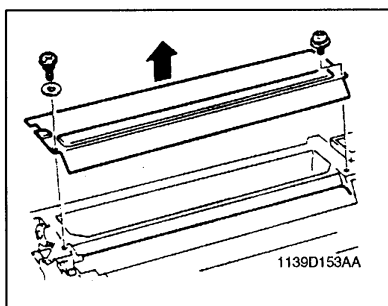


5. Remove two screws and one Drum Pin to remove the PC Drum.

#### NOTE

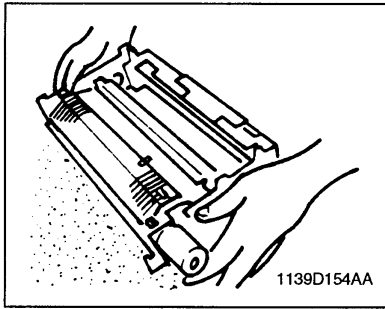
Whenever the PC Drum has been replaced, be sure to make the "Adjustment of the Optimum Exposure Setting in the Manual and Auto Mode." See p. D-51 to D-52.

#### Replacement of the Toner Scattering Prevention Plate



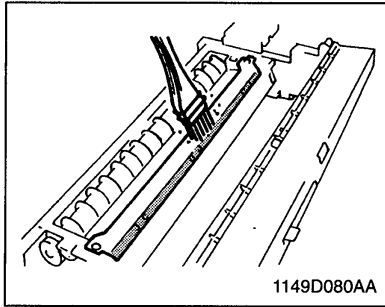
6. Remove one screw, one shoulder screw and the Toner Scattering Prevention Plate.





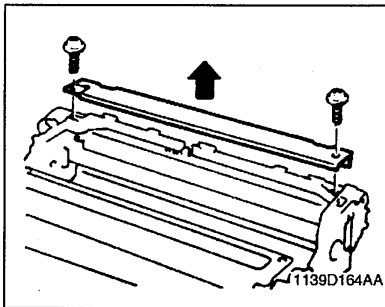
7. Tilt the Developing Unit to remove the developer.

#### Cleaning of the Doctor Blade

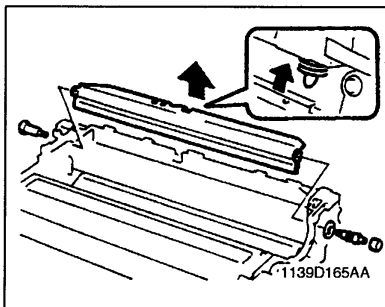


8. Clean the Surface of Doctor Blade using a brush or vacuum cleaner.

#### Replacement of the Cleaning Blade



9. Remove two screws and the Lid.

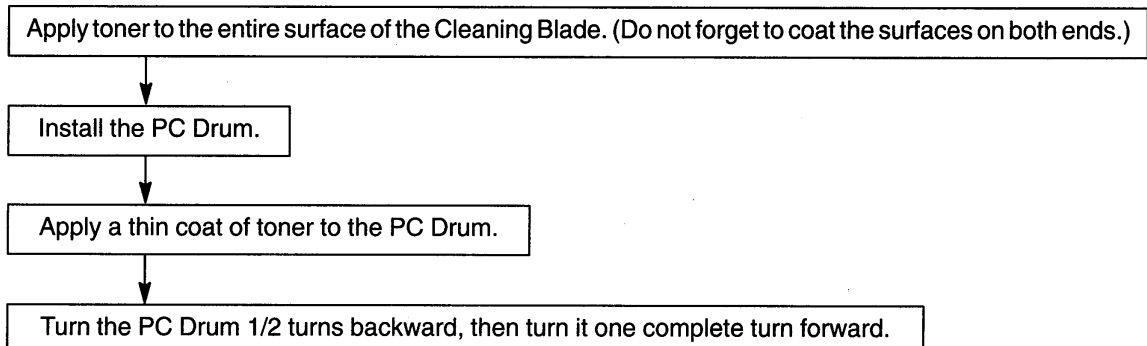


10. Remove the spring.
11. Remove two screws, one spring, one cap and the Cleaning Blade. Replace it with a new one.

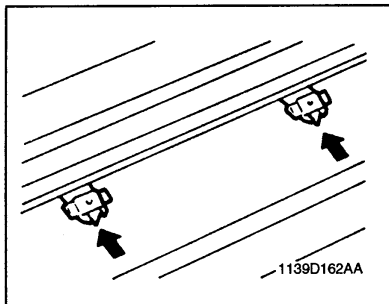
#### NOTE

*When the Cleaning Blade has been replaced, apply toner to the entire surface of the new Cleaning Blade.*

#### Applying Toner to Cleaning Blade

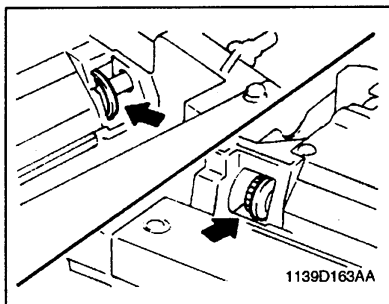


### Cleaning of the PC Drum Paper Separator Fingers



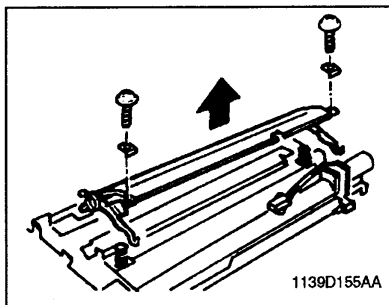
12. Using a soft cloth dampened with alcohol, wipe clean the Paper Separator Fingers.

### Cleaning of the Ds Positioning Collars



13. Using a soft cloth dampened with alcohol, wipe clean the Ds Positioning Collars.

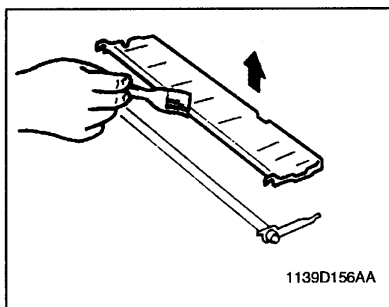
### Cleaning of the Paper Dust Remover



14. Remove two screws, two compression springs and the Synchronizing Roller Unit.

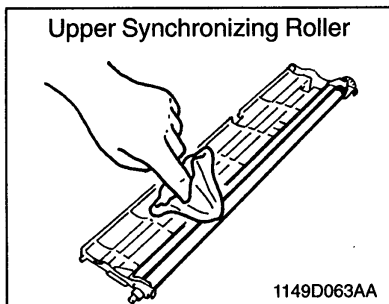
#### NOTE

When removing the Synchronizing Roller Unit, use care not to lose the compression springs. At reinstallation, fit the close-coiled end of the springs to the bosses on the Imaging Unit.

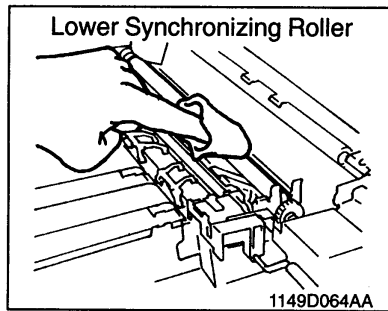


15. Remove the Synchronizing Roller.
16. Using a brush, whisk the dust and dirt off the Filter.

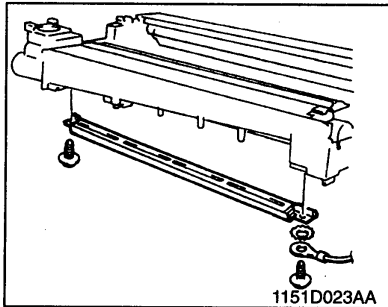
### Cleaning of the Upper and Lower Synchronizing Rollers



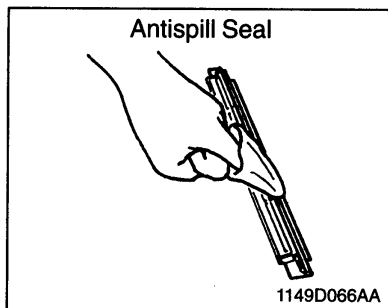
17. Using a brush or a soft cloth dampened with alcohol, clean the Upper and Lower Synchronizing Rollers.



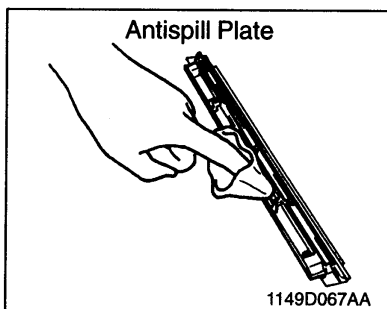
### Cleaning of the Magnet Roller Lower Antispill Seal and Antispill Plate



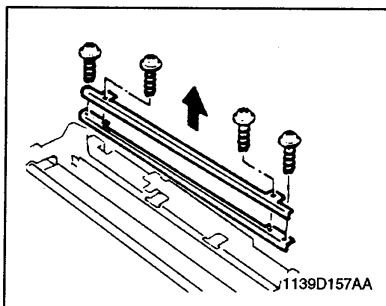
18. Remove two screws and the Magnet Roller Lower Antispill Seal and Antispill Plate.



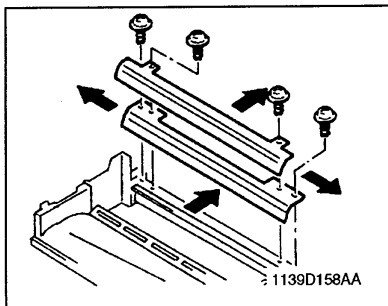
19. Using a soft cloth dampened with alcohol, clean the Antispill Seal and Antispill Plate.



### Replacement of the Toner Antispill Mylar

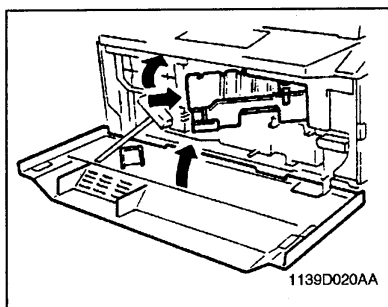


20. Remove two screws and the Bias Seal.  
(No Bias Seals are mounted in the copiers for the U.S.A., Canada, and Europe.)
21. Remove two screws and the Toner Antispill Mylar and replace the Mylar.



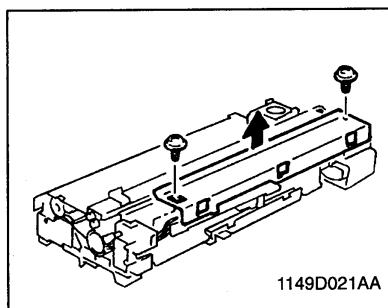
#### NOTE

At reinstallation, press the Toner Antispill Mylar up against the Imaging Unit Housing and the rear side of the copier (in the directions of the arrows) and press the Bias Seal up against the Imaging Unit Housing and the front side of the copier (in the directions of the arrows).

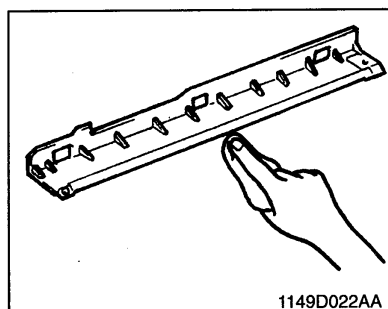


22. Refit the parts to the Imaging Unit and reinstall the Imaging Unit in the copier.
23. Load fresh starter and make the ATDC adjustment. See p. D-52.

### (2) Cleaning of the Main Erase Lamp LA2



1. Remove the Imaging Unit.
2. Remove two screws and Main Erase Lamp LA2.

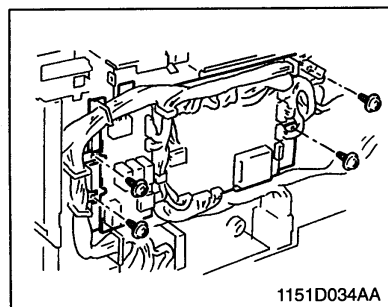


3. Using a brush or a soft cloth dampened with alcohol, clean LA2.

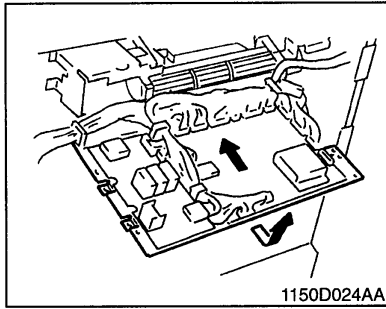
#### NOTE

- Use care not to touch the lamp with bare hands.

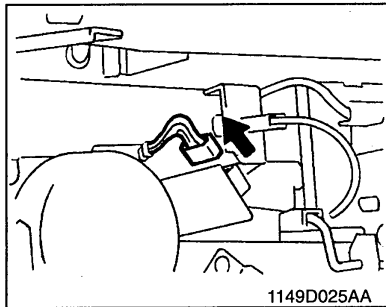
### (3) Cleaning of Image Erase Lamp LA3



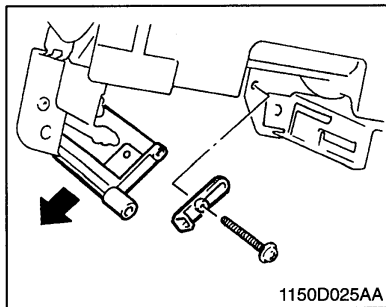
1. Remove four screws and PWB-A.



2. Insert PWB-A into the copier to secure it.



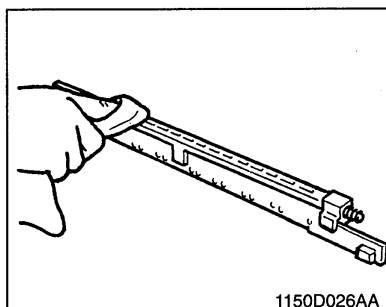
3. Go to the rear of the copier and unplug one LA3 connector.



4. Remove the Imaging Unit.
5. Remove one screw and the Image Erase Lamp.

**NOTE**

*When removing the Erase Lamp, use care not to lose the pressure spring in the rear.*



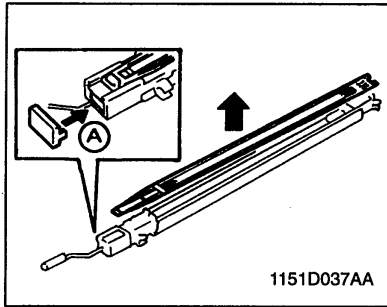
6. Using a brush or a soft cloth dampened with alcohol, clean the Erase Lamp.

**NOTE**

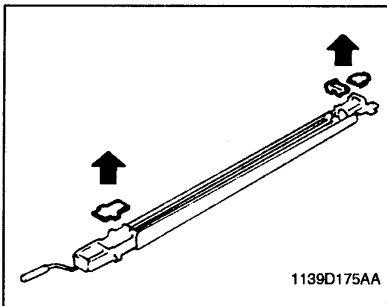
*After the Erase Lamp has been cleaned, make the "Adjustment of the Image Erase Lamp Position." See p. D-64.*

## 2-7. PC DRUM CHARGE CORONA/IMAGE TRANSFER CORONA UNIT

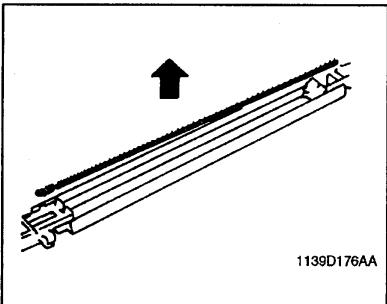
### (1) Cleaning of the PC Drum Charge Corona Housing



1. Remove the Imaging Unit.
2. Remove one screw and the PC Drum charge Corona Unit.
3. Press the Mesh Holder on the front of the Corona Unit in the direction of arrow A to remove the Grid Mesh.



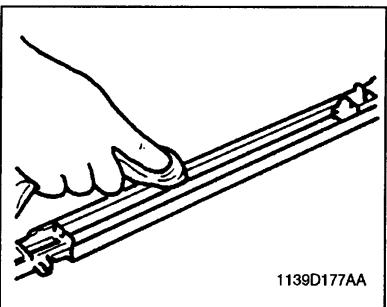
4. Remove the Cleaning Pad Cover.
5. Remove the End Caps from the front and rear ends of the Unit.



6. Remove the Comb Electrode.

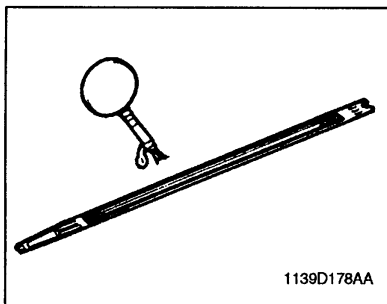
#### NOTE

*Use care not to deform the Electrode. When removing it, first snap off its spring end.*



7. Using a soft cloth dampened with alcohol, wipe the Housing clean of dirt.

### (2) Cleaning of the PC Drum Charge Corona Grid Mesh

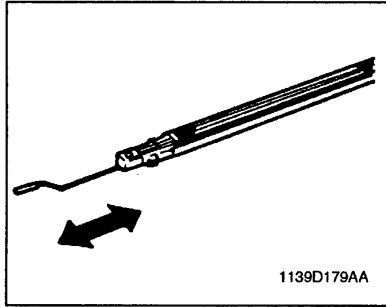


1. Blow all foreign matter off the Grid with a blower brush.

#### NOTE

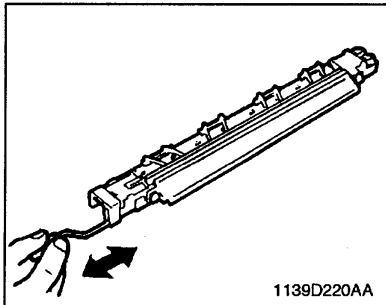
*If the blower brush is not effective in cleaning the Grid, use a soft cloth dampened with alcohol to clean serious contamination.*

### (3) Cleaning of the Comb Electrode

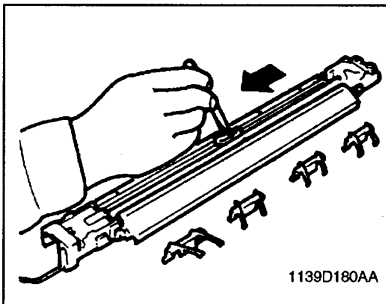


Clean the Comb Electrode using the Corona Unit Cleaning Lever.

### (4) Cleaning of the Image Transfer/Paper Separator Coronas Wires

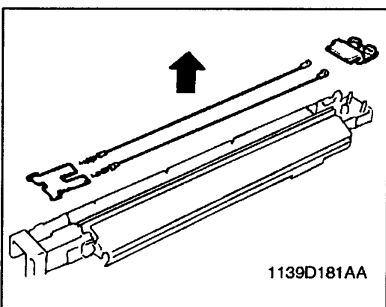


1. Clean the Image Transfer Corona Wire using the Corona Wire Cleaning Lever.



2. Remove the four Paper Guides.
3. Dampen a soft cloth with alcohol, hold it with a pair of tweezers, and wipe the Paper Separator Corona Wire gently in one direction. (Go from the hook to spring end.)

### (5) Cleaning of the Image Transfer/Paper Separator Coronas Housing

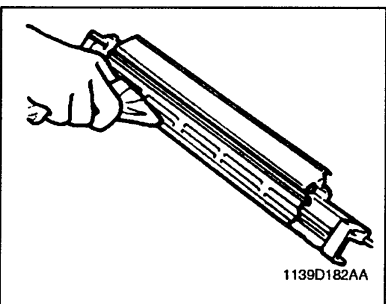


1. Remove the four Paper Guides.
2. Remove the two End Caps.
3. Remove the Image Transfer and Paper Separator Corona Wires.

#### NOTE

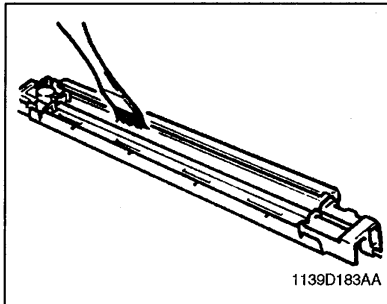
*When removing the Wire, unhook the spring end first and use care to prevent breaking and deformation. (Use a pair of tweezers.)*

*Keep the Corona Wire Cleaning Lever (for the Image Transfer Corona) pressed all the way back in. Do not attempt to remove the Lower Pre-Image Transfer Guide Plate as it has been adjusted for correct height.*



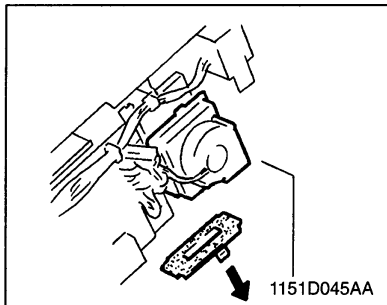
4. Using a soft cloth dampened with alcohol, wipe the Housing clean of dirt.

## (6) Cleaning of the Lower Pre-Image Transfer Guide Plate



Using a brush, whisk dust off the Lower Pre-Image Transfer Guide Plate.

## (7) Replacement of the Ozone Filter

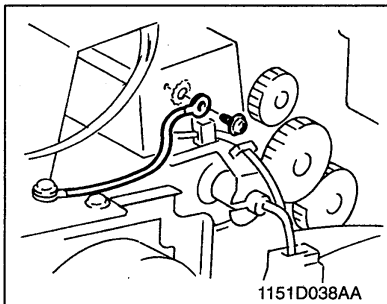


1. Press the Filter Cover Bracket in the direction of the arrows and pull it off.
2. Remove the Filter and replace it with a new one.

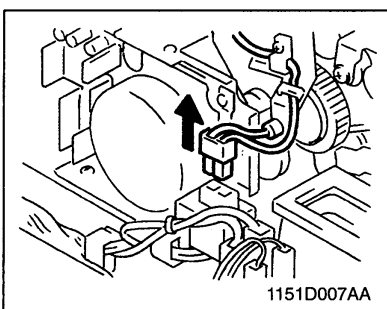
1139SBD0208A

## 2-8. Fusing Unit

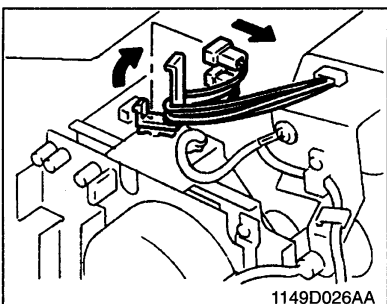
### (1) Removal of the Fusing Unit



1. Remove one screw and the Ground Wire of the Fusing Unit.

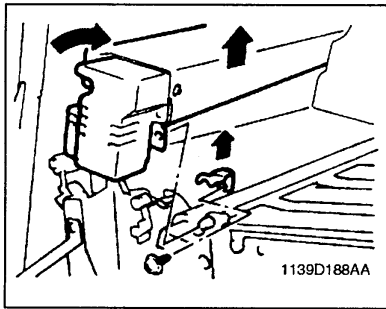


2. Unplug the Fusing Heater Lamp connector and remove the wires from the clamp.

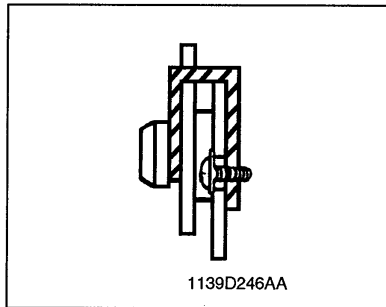


3. Unplug two Fusing Thermistor connectors and remove the wires from the clamp.





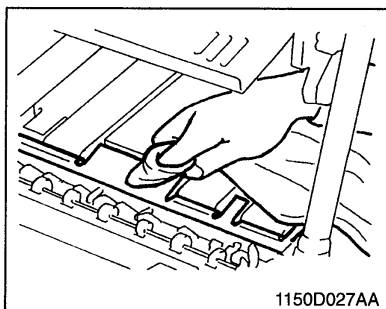
4. Remove one screw and the Fusing Unit Locking Plate.
5. Turning it in the direction of the arrow, remove the Fusing Unit.



**NOTE**

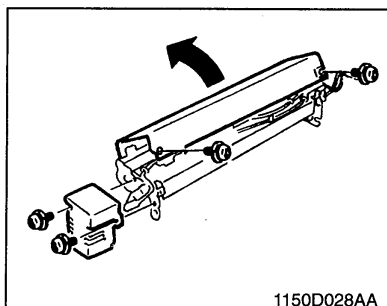
*When reinstalling the Fusing Unit, install the Locking Plate as illustrated on the left.*

## (2) Cleaning of the Pre-Fusing Guide Plate

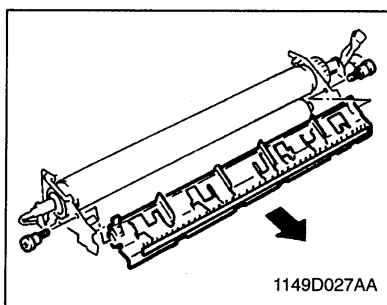


Using a soft cloth dampened with alcohol, wipe clean the Guide Plate.

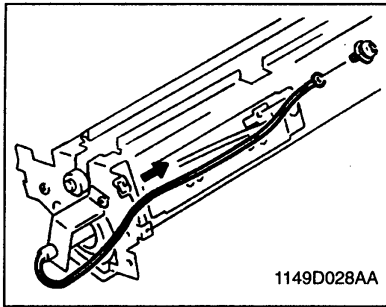
## (3) Removal of the Upper Fusing Roller



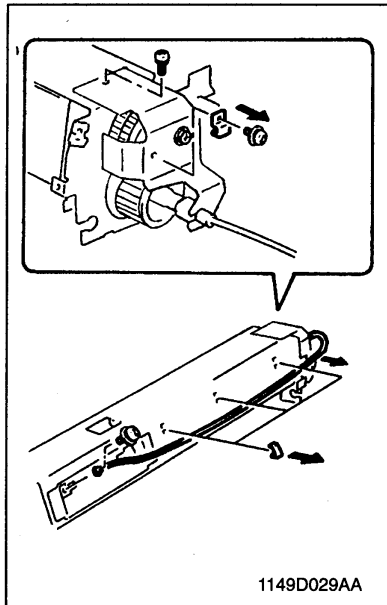
1. Remove two screws and the Fusing Unit Front Cover.
2. Remove two screws and the Fusing Unit Upper Cover.



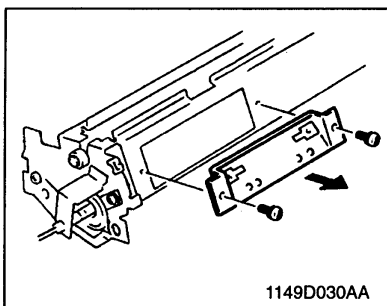
3. Remove two screws and the Upper Paper Separator Fingers Unit.



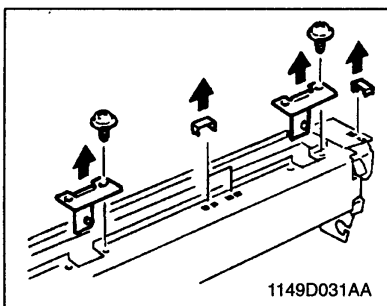
4. Remove the screw and clamp that secure the Lamp harness at the front of the copier.



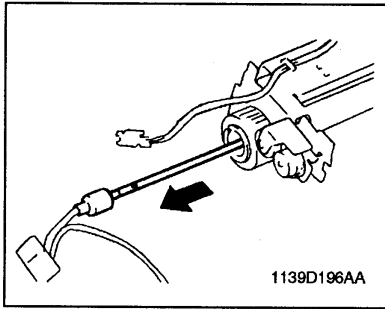
5. Remove the rear lamp harness and four harness clamps.
6. Remove one screw and the mounting bracket.



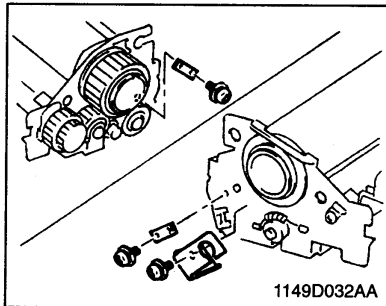
7. Remove two screws and the Fusing Thermoswitch.



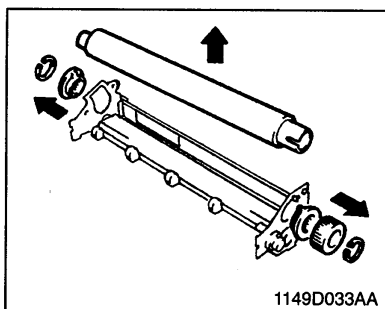
8. Remove three Cord Holders of Fusing Thermistors 1 & 2.
9. Remove one screw and the Fusing Thermistors.



10. Slide out the Fusing Heater Lamp.

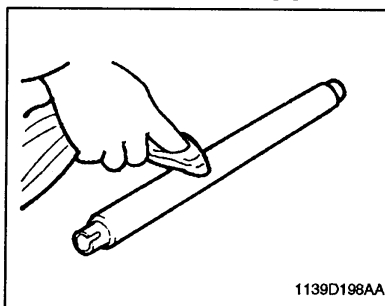


11. Remove two roller shaft fixing brackets and one Fusing Heater Lamp fixing bracket.



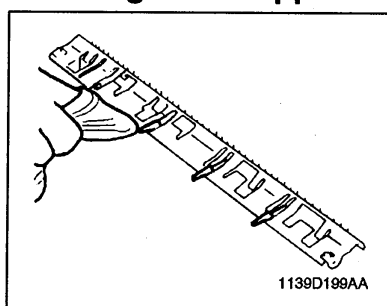
- 12. Remove two C-clips.
- 13. Remove one spur gear.
- 14. Remove two bushings.
- 15. Remove the Upper Fusing Roller.

#### (4) Cleaning of the Upper Fusing Roller



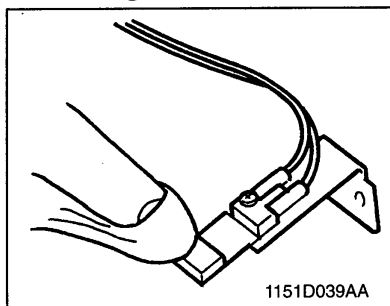
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Fusing Roller.

#### (5) Cleaning of the Upper Paper Separator Fingers



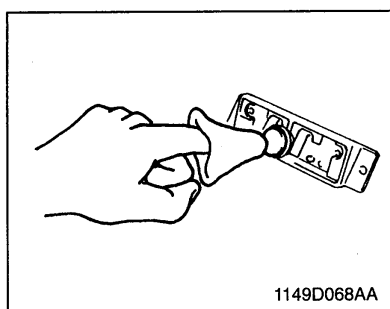
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Separator Fingers.

### (6) Cleaning of Fusing Thermistors 1 & 2



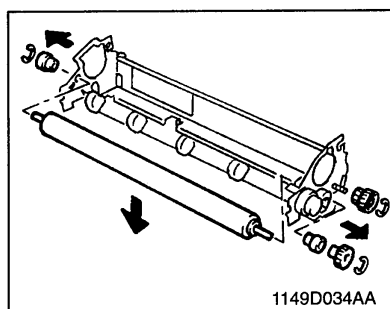
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Thermistors.

### (7) Cleaning of the Fusing Thermoswitch



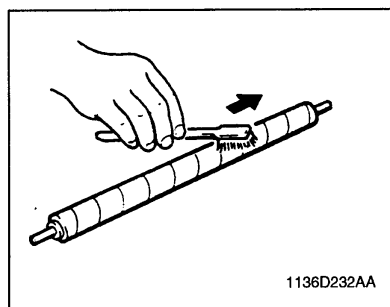
Using a soft cloth dampened with alcohol or silicone oil, clean the Fusing Thermoswitch.

### (8) Removal of the Oil Roller



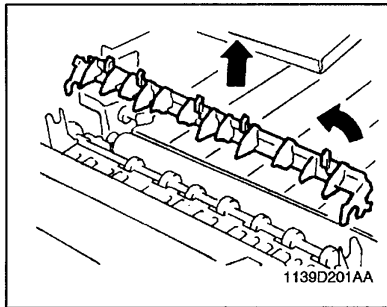
1. Snap off three E-rings and remove two gears.
2. Remove the bushings (front and rear) and the Oil Roller.

### (9) Cleaning of the Oil Roller

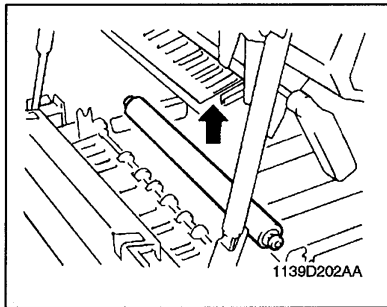


Using a brush, clean the Oil Roller.

## (10) Removal of the Lower Fusing Roller



1. Turning it in the direction of the arrow, remove the Lower Separator Fingers Unit.



2. Remove the Lower Fusing Roller

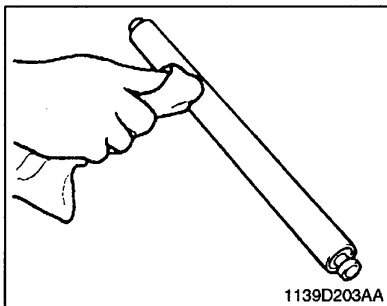
### NOTE

- Different types of pressure springs are used at the front and rear ends of the Fusing Unit. They are identified by the color on their ends as detailed below. Make sure that the correct one is placed at the correct position.

Yellow spring end: Front

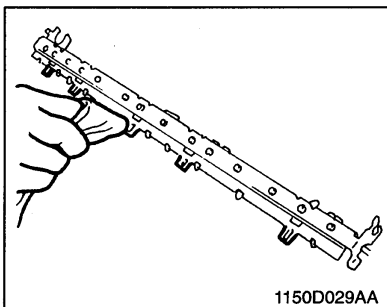
Blue spring end: Rear

## (11) Cleaning of the Lower Fusing Roller



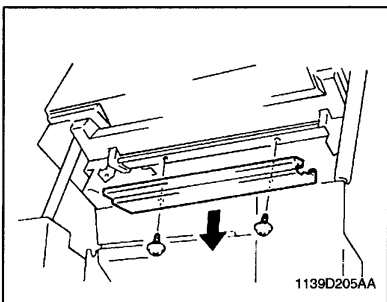
Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Fusing Roller.

## (12) Cleaning of the Lower Paper Separator Fingers

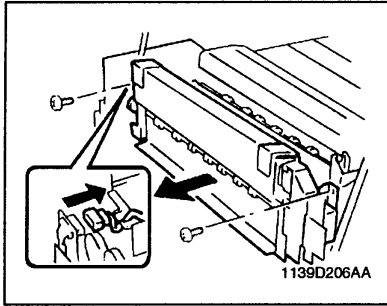


Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Paper Separator Fingers.

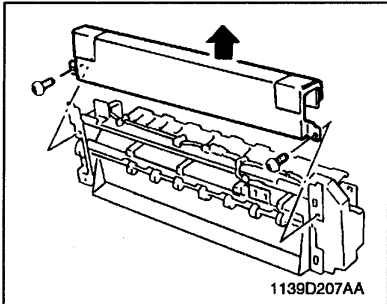
## (13) Disassembly of the Exit/Duplex Switching Unit (Option)



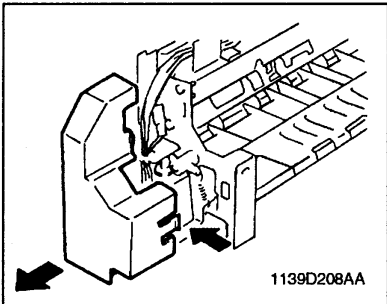
Remove two screws and the Upper Guide Plate.



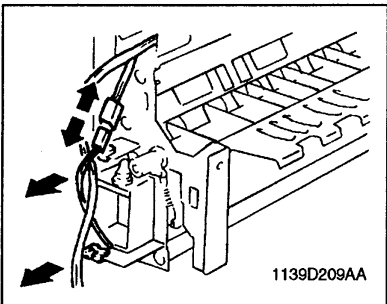
2. Remove two screws and the Exit/Duplex Switching Unit.
3. Unplug one connector.



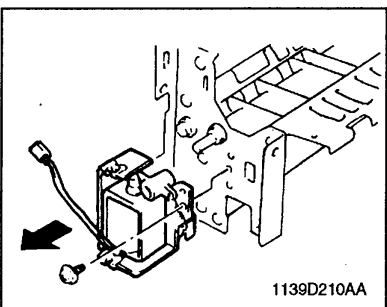
4. Remove two screws and the Cover.



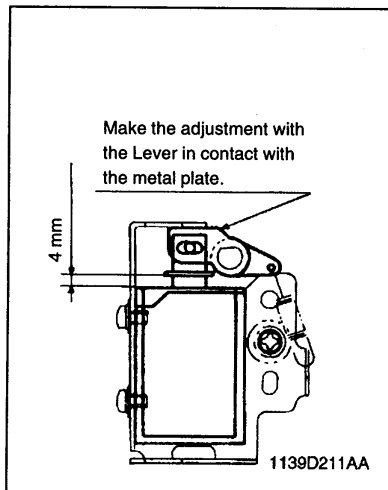
5. Remove the Solenoid Cover by unhooking its catches at three places.



6. Unplug the solenoid connector.
7. Remove the harness from the Solenoid Unit clamps at two places.

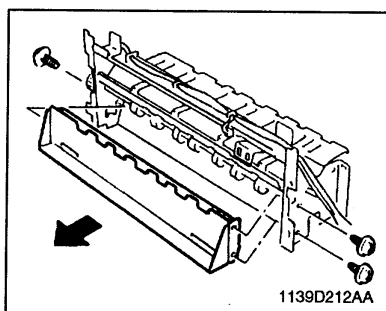


8. Remove one screw and the Solenoid Unit.

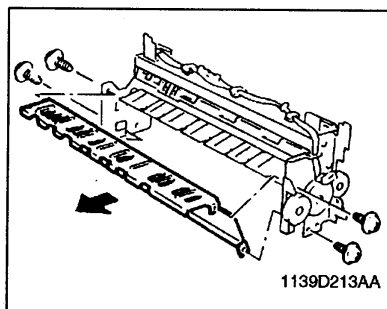


**NOTE**

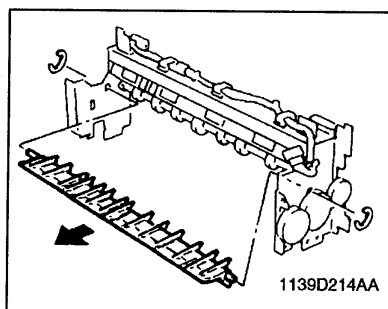
If the solenoid has been removed from the Solenoid Unit, make the adjustment shown on the left with the Solenoid Unit installed in the Exit/Duplex Switching Unit.



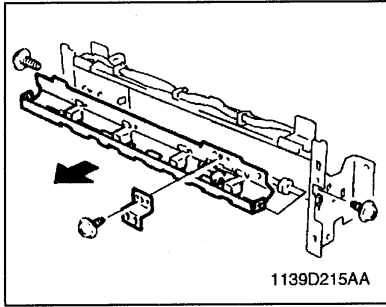
9. Remove three screws and the Copy Tray Holder.



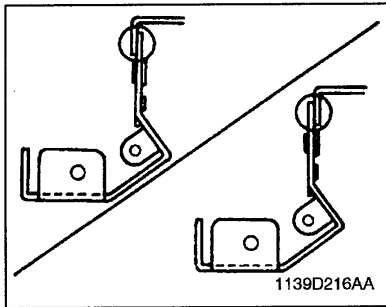
10. Remove four screws and the Lower Guide.



11. Snap off two E-rings to remove the Exit/Duplex Switching Plate.

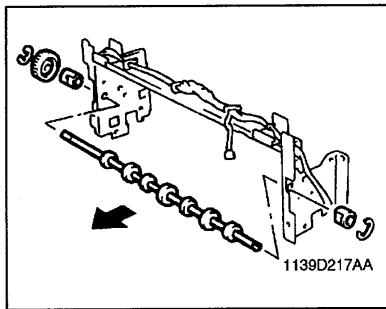


12. Remove one screw and the Photoswitch Mounting Bracket.
13. Remove two screws and the Exit Rolls Mounting Bracket Unit.

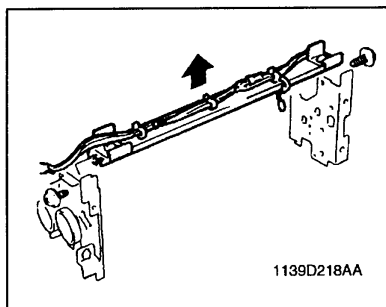


**NOTE**

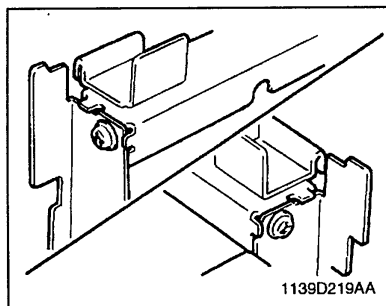
*When reinstalling the Exit Rolls Mounting Bracket Unit, make sure that the Reinforcement Plate Unit is in contact with the Exit Rolls Mounting Bracket Unit as shown on the left.*



14. Snap off two E-rings to remove the Exit Roller.



15. Remove the harness from the clamp.
16. Remove two screws and the Reinforcement Plate Unit.



**NOTE**

*When reinstalling the Reinforcement Plate Unit, make sure that the Unit is in contact with the frame at the front and rear sides of the copier as shown on the left.*



## 3 ADJUSTMENT

1150SBD0301A

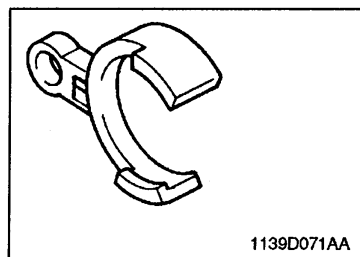
### 3-1. JIGS AND TOOLS USED

#### ◆ Important

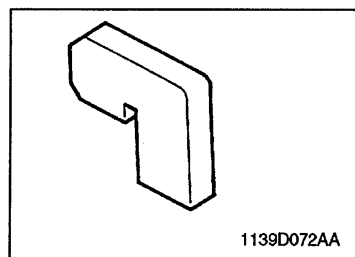
- When adjusting the positions of the Scanner and Mirrors Carriage, use Jigs number ③ and ④.
- When adjusting the gap between the Doctor Blade and Sleeve Roller, use Jigs number ⑤ and ⑥.
- When adjusting the position of PC Drum Paper Separator Fingers, use Jigs number ⑤ and ⑦.



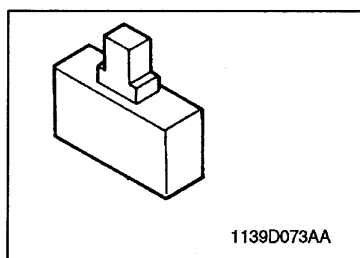
① Cable Holding Jig



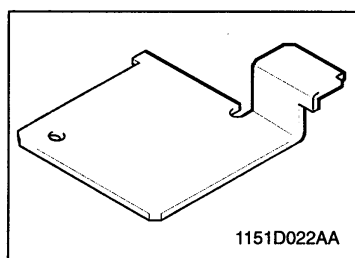
② Front Door Interlock Switch Actuating Jig



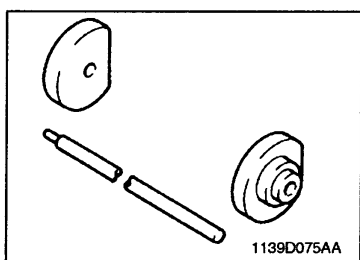
③ Scanner Positioning Jig



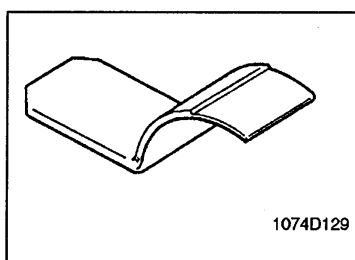
④ Scanner/Mirrors Carriage Positioning Jig



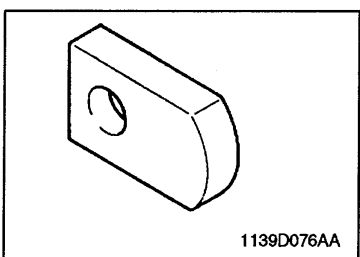
⑤ Sleeve/Magnet Roller Position Jig



⑥ D.B. Adjusting Jigs



⑦ PC Drum Paper Separator Fingers Positioning Jig



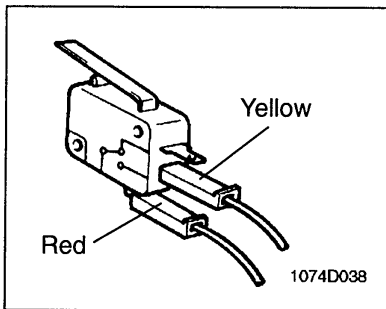
**3-2. ADJUSTMENT REQUIREMENTS LIST**

Adjustment Item	Requirements	Adjusting Point	Ref. Page
Max. Exposure Lamp Voltage	100 to 127V areas: $81 \pm 1$ V 200 to 240V areas: $162 \pm 2$ V	Control panel	D-48
Optimum Exposure Setting in the Manual Exposure Mode	Kodak Gray Scale: no image of the 1st step, faint image of the 2nd step	Control panel	D-51
Optimum Exposure Setting in the Auto Exposure Mode		Control panel	D-52
Multi Bypass Table Reference Position	(100 %) $20 \pm 2$ mm	Multi Bypass Table	D-55
1st Drawer Reference Position	(100 %) $20 \pm 2$ mm	Drawer Front Panel	D-56
2nd Drawer Reference Position	(100 %) $20 \pm 2$ mm	Drawer Front Panel	D-56
Full Size Leading Edge Registration	(100 %) $20 \pm 1.5$ mm	Control panel	D-58
Enlargement Leading Edge Registration	(200 %) $40 \pm 3$ mm	Control panel	D-60
Reduction Leading Edge Registration	(50 %) $10 \pm 1.5$ mm	Control panel	D-61
Image Leading Edge Erase Width	0.5 to 6.5 mm	Control panel	D-62
Image Erase Lamp Position	$1 \pm 0.5$ mm	Adjusting Screw for Image Erase Lamp position	D-64
Adjustment of the Original Size Detecting Board		Control panel	D-68

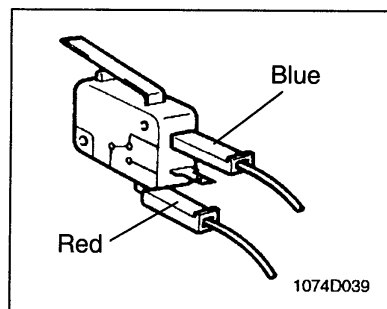
### 3-3. ADJUSTMENT OF SWITCHES

#### Microswitches

The following microswitches are used in various parts of this copier.



Wiring for the NO Type



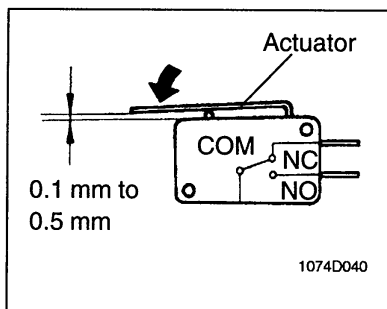
Wiring for the NC Type

NC (Normally-Closed) : Current flows between NC and COM when the actuator is open.

NO (Normally-Open) : Current flows between NO and COM when the actuator is closed.

COM (Common) : Common contact for NC and NO

#### Requirement

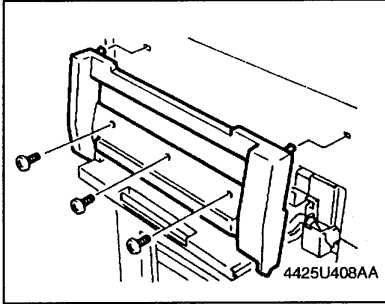


The gap between the switch and actuator should be 0.1 mm to 0.5 mm when the actuator is closed.

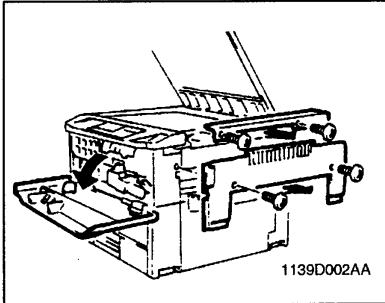
#### Out-of-Adjustment (When the actuator is closed)

- If the gap between the switch and actuator is too big, current does not at times flow to NC or NO.
- If there is no gap between the switch and actuator, the actuator is bent or the switch can be broken.

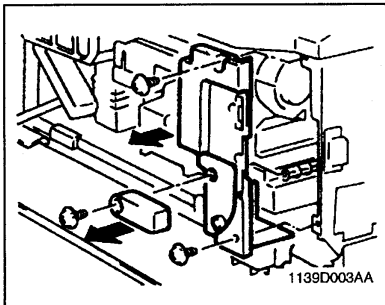
## (1) Adjustment of Front Door Interlock Switch S21



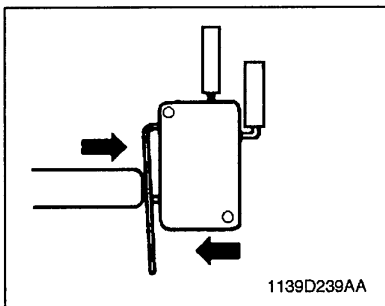
1. Remove four screws and the Middle Right Cover.



2. Swing down the Front Door.
3. Remove two screws and the Upper Right Cover.
4. Remove two screws and the Right Cover.



5. Remove one screw and the IU Lock Lever.
6. Remove two screws and the Interlock Switch Cover.



7. Loosen the two screws that secure Front Door Interlock Switch S21. Move S21 as far toward the front side of the copier as it will go and temporarily secure it in position.
8. Gently swing the Front Door closed and then tighten the two S21 mounting screws to specification.

- The Switch is wired for the NO type.

### 3-4. ELECTRICAL/IMAGE ADJUSTMENTS

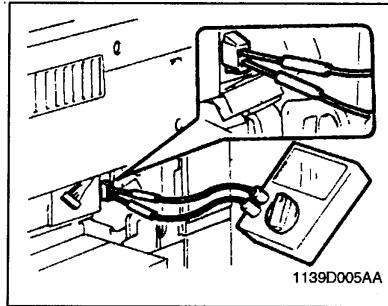
#### (1) Adjustment of the Maximum Exposure Lamp Voltage for the Manual Mode

##### ◆ Requirement

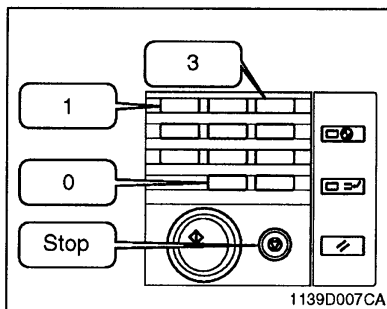
- Maximum Exposure Lamp voltage:  $81 \pm 1V$  (RMS value)

##### ◆ Important

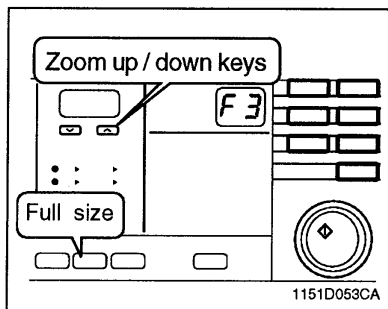
- After the maximum Exposure Lamp voltage has been adjusted, be sure to make the following adjustments: Optimum Exposure Setting in the Manual Mode and Optimum Exposure Setting in the Auto Mode.



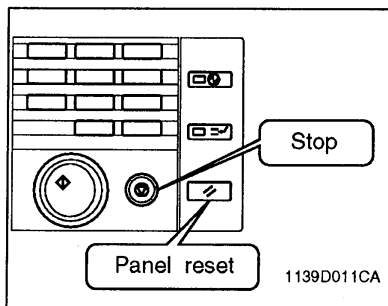
1. Remove two screws and the Middle Right Cover.
2. Insert the probes of the multimeter into the receptacles of the Exposure Lamp voltage measurement connector.



3. On the control panel, press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
4. Press Multi-Copy Key "1" and then "3" to set the copier into the F3 Test Mode. (At this time, the Magnification Ratio Indicator shows the currently set value and the Multi-Copy Display shows "F3.")



5. Press the Full Size Key to select the Lamp voltage setting mode. (The Magnification Ratio Indicator shows "L + current setting.")
6. Press the Start Key to light up the Exposure Lamp and, using the Zoom Up/Down Keys, adjust to obtain a Lamp voltage of 81V.



7. Press the Stop Key to stop the F3 operation. (Or, the operation will be automatically completed in about 30 sec.)
8. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.

##### NOTE

For the Root Mean Square values and Mean values, see p. 49-50. Most testers, voltmeters, or multimeters used in the field show only the mean values.

When using the testers, voltmeters, or multimeters which show only the mean value, not Rms values, carry out the following procedure.

1. Measure the line voltage.
2. Referring to the Mean Value Chart corresponding to each voltage area, see the figure under the voltage obtained in step 1.

If the line voltage is 125 V and Rms value is 81 V, for example, the mean value is 54.5 V. Therefore, it is recommended that the voltage be adjusted so that the mean value is set as close to 54.5 V as possible.

#### MEAN VALUE

##### CHART FOR 115/120/127V AREAS

<b>Rms \ V</b>	<b>104</b>	<b>105</b>	<b>106</b>	<b>107</b>	<b>108</b>	<b>109</b>	<b>110</b>	<b>111</b>	<b>112</b>	<b>113</b>	
81.0	60.7	60.3	60.0	59.7	59.2	59.0	58.5	58.2	58.0	57.7	MEAN VALUE

<b>Rms \ V</b>	<b>114</b>	<b>115</b>	<b>116</b>	<b>117</b>	<b>118</b>	<b>119</b>	<b>120</b>	<b>121</b>	<b>122</b>	<b>123</b>	
81.0	57.3	57.0	56.8	56.5	56.2	56.0	55.7	55.5	55.2	55.0	MEAN VALUE

<b>Rms \ V</b>	<b>124</b>	<b>125</b>	<b>126</b>	<b>127</b>	<b>128</b>	<b>129</b>	<b>130</b>	<b>131</b>	<b>132</b>	<b>133</b>	
81.0	54.7	54.5	54.3	54.2	54.0	53.7	53.5	53.2	53.0	52.8	MEAN VALUE

<b>Rms \ V</b>	<b>134</b>	<b>135</b>	<b>136</b>	<b>137</b>	<b>138</b>	<b>139</b>	<b>140</b>	
81.0	52.7	52.5	52.2	52.1	52.0	51.7	51.5	MEAN VALUE

MEAN VALUE  
CHART FOR 200/220/240V AREAS

Rms \ V	180	181	182	183	184	185	186	187	188	189	
162.0	135.9	135.2	134.5	133.8	133.2	132.6	131.9	131.4	130.8	130.2	MEAN VALUE

Rms \ V	190	191	192	193	194	195	196	197	198	199	
162.0	129.7	129.1	128.6	128.1	127.6	127.1	126.6	126.1	125.7	125.2	MEAN VALUE

Rms \ V	200	201	202	203	204	205	206	207	208	209	
162.0	124.7	124.2	123.9	123.5	123.1	122.7	122.2	121.9	121.5	121.1	MEAN VALUE

Rms \ V	210	211	212	213	214	215	216	217	218	219	
162.0	120.7	120.4	120.0	119.7	119.2	119.0	118.6	118.2	118.0	117.6	MEAN VALUE

Rms \ V	220	221	222	223	224	225	226	227	228	229	
162.0	117.2	117.0	116.7	116.4	116.1	115.7	115.5	115.2	114.9	114.6	MEAN VALUE

Rms \ V	230	231	232	233	234	235	236	237	238	239	
162.0	114.2	114.0	113.7	113.5	113.2	112.9	112.7	112.4	112.1	111.9	MEAN VALUE

Rms \ V	240	241	242	243	244	245	246	247	248	249	
162.0	111.6	111.4	111.1	110.9	110.6	110.4	110.2	109.9	109.7	109.5	MEAN VALUE

Rms \ V	250	251	252	253	254	255	256	257	258	259	
162.0	109.2	109.0	108.7	108.6	108.2	108.1	107.9	107.7	107.5	107.2	MEAN VALUE

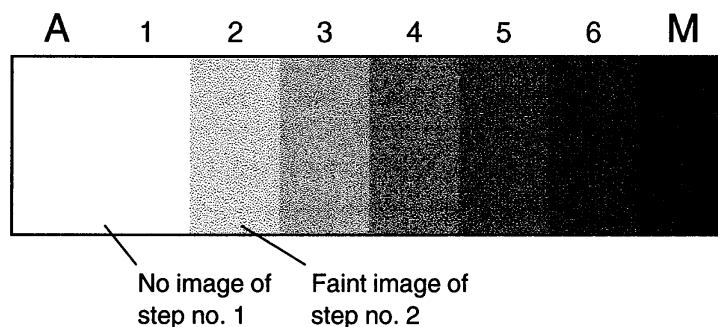
Rms \ V	260	261	262	263	264	265	266	267	268	269	
162.0	107.1	106.9	106.6	106.4	106.2	106.0	105.7	105.6	105.4	105.2	MEAN VALUE

Rms \ V	270	271	272	273	274	
162.0	105.1	104.9	104.7	104.5	104.2	MEAN VALUE

## (2) Adjustment of the Optimum Exposure Setting in the Manual Mode

### ◆ Requirement

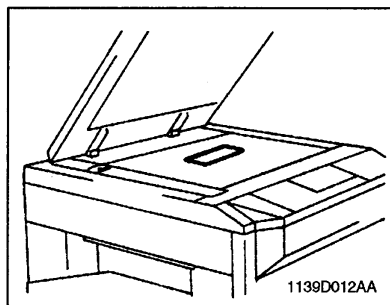
- When the manual exposure setting is at the central indication, no image of step no. 1 of a Kodak Gray Scale should be produced on the copy, but a faint image of step no. 2 should be produced.



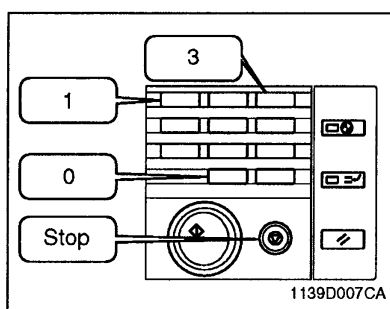
1139D270AA

### ◆ Important

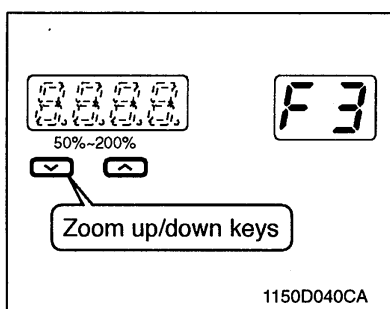
- This adjustment should be carried out only after completing "Adjustment of the Maximum Exposure Lamp Voltage for the Manual Mode" and "Adjustment of the Aperture Blades."



- Place the Kodak Gray Scale lengthwise, face down, and at the center on the Original Glass. Place a sheet of pure white A3 or 11" × 17" paper over it and then lower the Original Cover.
- Set the copier into the Manual Exposure Mode. Set the Exposure Setting to the central or fifth indication and enter 15 copies to be made by using the Multi-Copy Keys. (Use A3 paper.)
- Press the Start Key.  
Check that the 15th copy meets the requirement given above.



- If the exposure is out of adjustment, press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
- Press "1" and then "3" to set the copier into the F3 Test Mode. (At this time, the Magnification Ratio Indicator shows the currently set value and the Multi-Copy Display shows "F3.")



- Using the Zoom Up/Down Keys, vary the value on the Magnification Ratio Indicator as necessary.
- After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.

### NOTE

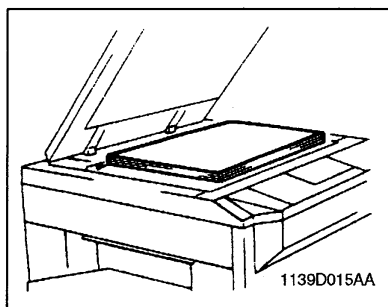
*Increase the value to make the image lighter.  
Decrease the value to make the image darker.*



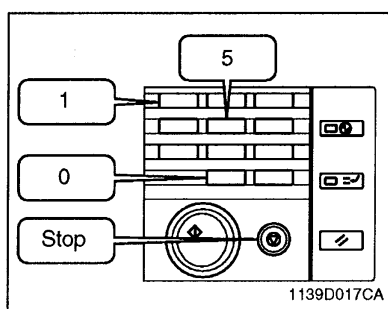
### (3) Adjustment of the Optimum Exposure Setting in the Auto Mode

#### ◆ Important

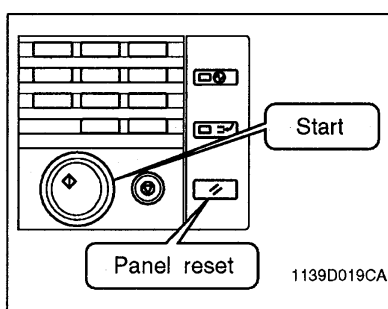
- This adjustment must be made after the optimum exposure setting in the Manual Mode has been adjusted.



1. Place about five sheets of A3 or 11" × 17" paper on the Original Glass and lower the Original Cover.



2. On the control panel, press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
3. Press "1" and "5" to set the copier into the F5 Test Mode. (At this time, the Multi-Copy Display shows "F5.")



4. Press the Start Key to let the copier make the adjustment.
5. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.

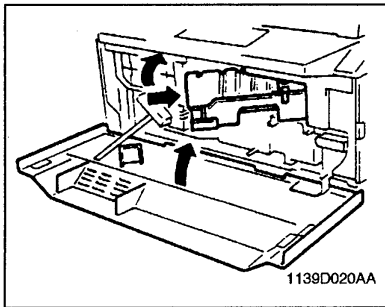
#### NOTE

Pressing the Start Key lets the copier make the adjustment of optimum exposure setting. During the adjustment, the Start Key is lit up orange. It turns to green as soon as the adjustment is completed. (It takes about 5 sec. to make the adjustment.) The Full Size Key can be used to alternately display on the Magnification Ratio Indicator either the adjusting value (AE Sensor memory level) or the voltage value (AE Sensor output).

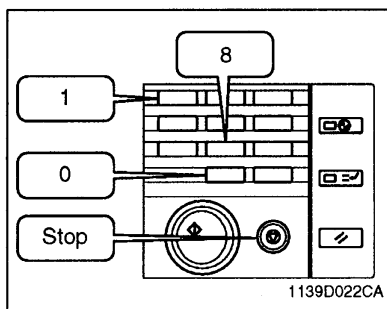
## (4) Adjustment of the ATDC Sensor

### ◆ Important

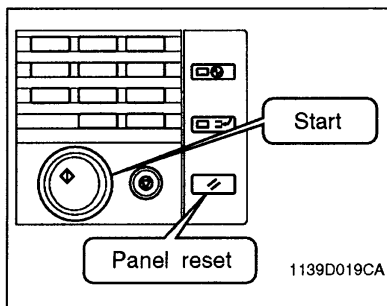
- The adjustment must be made whenever the currently used Imaging Unit has been charged with new starter.



1. Load the starter.



2. On the control panel, press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
3. Press "1" and "8" to set the copier into the F8 Test Mode. (At this time, the Multi-Copy Display shows "F8.")



4. Press the Start Key to let the copier make the ATDC Sensor adjustment automatically. (It takes about 5 min. for the copier to complete the adjustment procedure.)
5. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.

### NOTE

The IU Counter available from the Consumables counter menu is automatically reset when the ATDC Sensor gain adjustment has been completed.

The Full Size key can be used to alternately display the data on the Magnification Ratio Indicator, either the ATDC Sensor output voltage or ATDC Sensor gain.

## (5) Adjustment of the Aperture Blades

### ◆ Requirement

- There should be no dark or light bands running in the feeding direction on copies produced. (Adjust to obtain the mean image density for all areas.)

### ◆ Important

- If dark and light bands running in the feeding direction occur on copies, make this adjustment after checking the following.
  - 1) The Drum Charge Corona Wire, Grid Mesh, and Image Transfer Corona Wire are free of dust.
  - 2) The surfaces of the Mirrors and Lens are free of dust.
  - 3) The surfaces of the Exposure Lamp and Main Erase Lamp are free of scratches and dust.
  - 4) The Cleaning Blade is free of waviness.

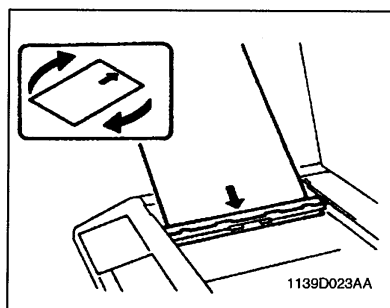
1. Make a copy under the following control panel settings.

Original : A3 or A4 crosswise,  
11" × 17" or 11" × 8-1/2" crosswise

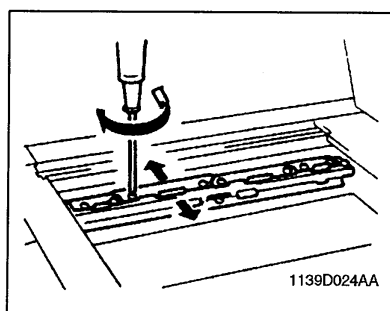
Paper : A3 or A4 crosswise,  
11" × 17" or 11" × 8-1/2" crosswise

Magnification : 100 %  
ratio

Exposure : Manual (setting convenient for check)



2. Remove the Original Glass.
3. Turn the copy on the Copy Tray around as shown to reverse the leading and trailing edges and align it with the Aperture Blades.



4. Adjust to obtain the mean image density for all areas of the copy.

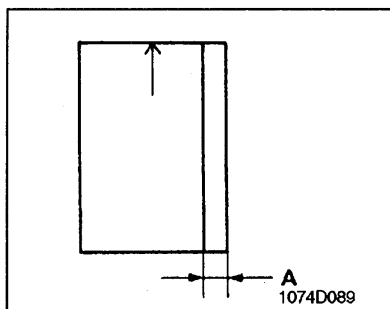
### NOTE

*To make the image darker, move the Aperture Blade toward the Auxiliary Reflector.*

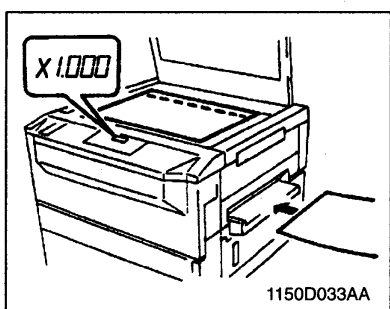
*To make the image lighter, move the Aperture Blade away from the Auxiliary Reflector.*

## (6) Adjustment of the Manual Bypass Table Reference Position

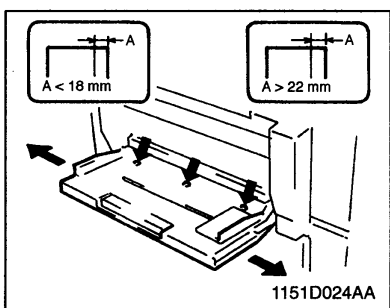
### ◆ Requirement



- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line on the chart at a point 20 mm from the right edge as shown.
- Dimension A on the copy should measure  $20 \pm 2.0$  mm.



1. Place the test chart face down on the Original Glass and align its rear left corner with the  $\triangleright$  marker on the Original Width Scale on the left side of the platen. Then, lower the Original Cover.
2. Using the Manual Bypass Table, make two full size ( $\times 1.000$ ) copies.
3. Using the second copy, compare the position of the reference line on the copy with that on the test chart.



4. If the line does not meet the requirement, loosen the three screws that secure the Manual Bypass Table and move the Table as necessary in the direction of the arrows.

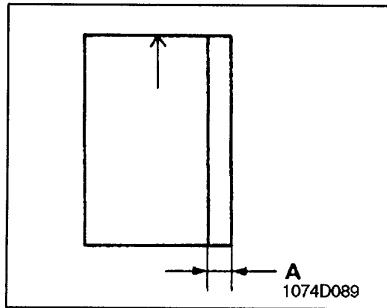
### NOTE

If dimension A on the copy is smaller than 18 mm, move the Table to the front. If it is more than 22 mm, move the Table to the rear.

When an Automatic or Duplexing Document Feeder is mounted, it involves changing the Original Glass. This in turn results in the position of the Original Length Scale being slightly shifted toward the rear. This is corrected by installing the Original Positioning Plate.

## (7) Adjustment of the 1st/2nd Drawer Reference Position

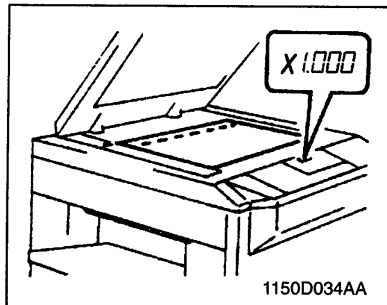
### ◆ Requirement



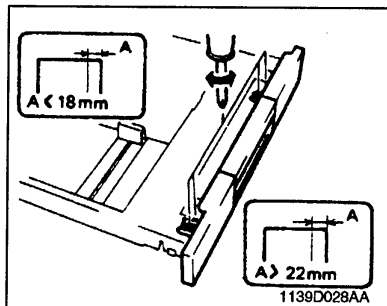
- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line on the chart at a point 20 mm from the right edge as shown.
- Dimension A on the copy should measure  $20 \pm 2.0$  mm.

### ◆ Important

- If the Paper Tray of the Drawer needs to be moved for adjustment, make sure that it is moved straight, not slantwise (as skewed feeding of paper could result).



1. Place the test chart face down on the Original Glass and align its rear left corner with the  $\triangleright$  marker on the Original Width Scale on the left side of the platen. Then, lower the Original Cover.
2. Using the 1st Drawer, make two full size ( $\times 1.000$ ) copies. (Use A3 or 11" × 17" paper.)
3. Using the second copy, compare the position of the reference line on the copy with that on the test chart.



4. If the line does not meet the requirement, slide out the 1st Drawer, loosen the four screws shown on the left, and move the Paper Tray as necessary to the front or rear.
5. Using the same steps (1 through 4), adjust the reference position of the 2nd Drawer.

### NOTE

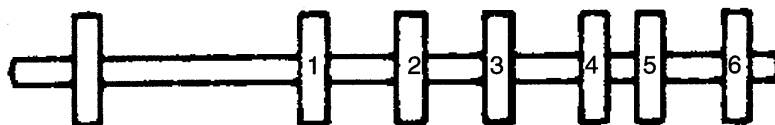
If dimension A on the copy is smaller than 18 mm, move the Paper Tray to the rear. If it is more than 22 mm, move the Paper Tray to the front.

## (8) Adjustment of the Paper Lifting Plate Springs (2nd Drawer)





### ◆ Important

- When the paper size loaded in the 2nd Drawer has been changed, be sure to replace the Springs by referring to the Table given below. (For replacement of the Springs, see p. D-13.)
- When the Springs have been replaced, change the position of the 2nd Drawer Paper Take-Up Roll by referring to the Table given below. (For disassembly of the Paper Take-Up Roll Unit, see p. D-11.)
- The Springs for replacement can be found on the underside of the 2nd Drawer.

Roll Positions



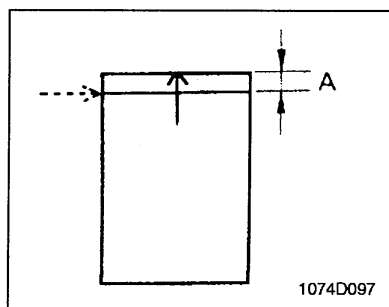
1139D029AA

			Positions of 2nd Drawer Spring Installation					2nd Drawer Paper Take-up Roll Position
	NO	2nd Drawer Paper Size Indication	SP1. 1~9 SP2.10~14	SP2. 12~24	SP1. 6~9 SP2. 10~11	SP1. 2~5	SP1. 1	
Edge Guide	1	A3/A4 	SP Silver			SP Silver	SP Silver	6
	2	11 × 17 LTR. 						5
	3	G.LTR 						5
	4	B4/B5 						4
	5	254						4
	6				SP Silver			3
	7	FLS.						3
	8	LTR.						3
	9	A4						3
	10	FLS.	SP Gold		SP Gold			2
	11	B5						2
	12			SP Gold				1
	13	A5						1
	14	INV.						1

## (9) Adjustment of the Leading Edge Registration

### Full Size

#### ◆ Requirement



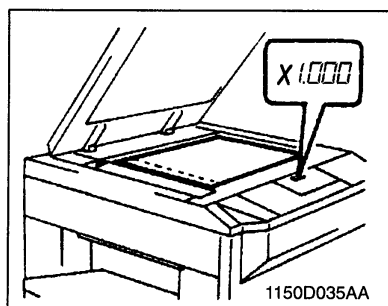
- Ready a test chart (A3 or 11" × 17") as shown on the left. Draw a line across the test chart at a point 20 mm from the leading edge and use it as the reference line. Dimension A at the center on the copy should meet the following requirements.

Mag. Ratio	Dimension A (mm)
Full Size (×1.000)	20.0 ± 1.5
Enlargement (×2.000)	40.0 ± 3
Reduction (×0.500)	10.0 ± 1.5

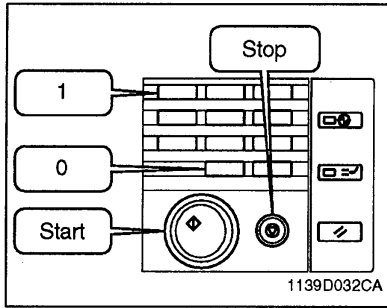
- Setting value range: 30 to 70
- Movement equivalent to 1 step of setting value: 0.28 mm

#### ◆ Important

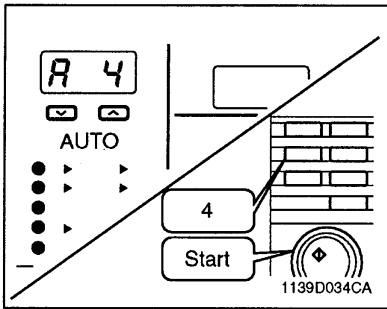
- After having set the copier into the Adjust Mode, make two single copies and use the second copy for the check. (The first copy represents the data before adjustment.)
- When full size leading edge registration has been adjusted, it affects leading edge registration in the enlargement and reduction mode. Be sure, therefore, to check for registration in these modes, too.



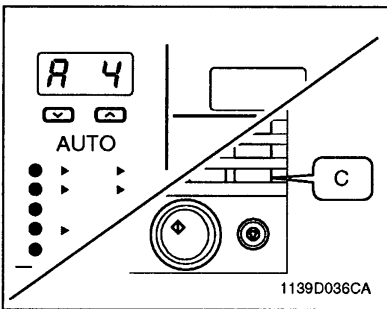
1. Place the test chart face down on the Original Glass and align its rear left corner with the ▷ marker on the Original Width Scale on the left side of the platen. Then, lower the Original Cover.
2. Make two single copies in full size mode (×1.000) and check for leading edge registration on the second copy. (If it meets the requirement, go to "Adjustment of Enlargement Leading Edge Registration.")



3. If the registration does not meet the requirement, go to the control panel and press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
4. Press the Stop Key and then the Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows "A.")



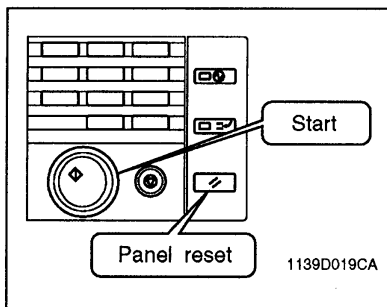
5. Press "4" and press the Start Key. (Then, the Magnification Ratio Indicator shows "A4" and the Multi-Copy Display the current setting value.)



6. Press the Clear Key to clear the current setting value.
7. With the old setting value used as reference, enter the new setting value using the appropriate Multi-Copy Keys.

**NOTE**

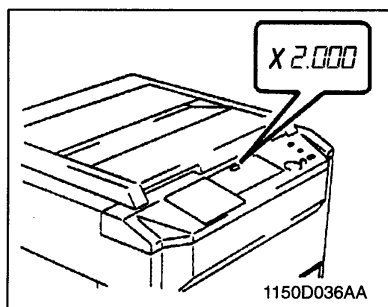
*If dimension A on the copy is smaller than 18.5 mm, decrease the setting value.  
If dimension A on the copy is greater than 21.5 mm, increase the setting value.*



8. Press the Start Key to validate the setting.
9. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
10. Make two single copies and check for leading edge registration on the second copy. (If it does not meet the requirement, perform steps 3 through 10 again.)

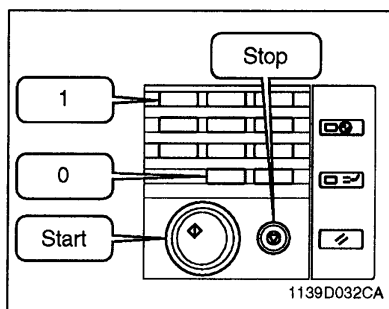


## Enlargement

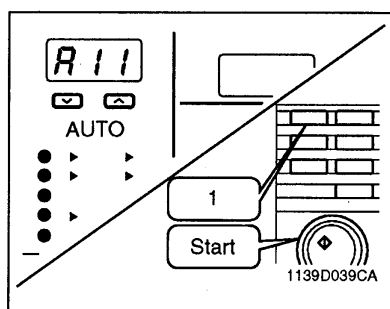


1. After the leading edge registration in the full size mode has been adjusted, make two single copies in an enlargement mode ( $\times 2.000$ ) and check for leading edge registration on the second copy.

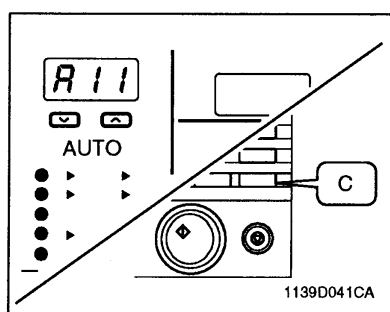
(If the enlargement leading edge registration meets the requirement, go to "Adjustment of Reduction Leading Edge Registration.")



2. If the registration does not meet the requirement, go to the control panel and press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
3. Press the Stop Key and then the Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows "A.")



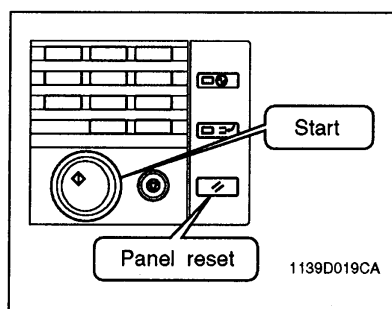
4. Press "5" and the Start Key. (Then, the Magnification Ratio Indicator shows "A 5" and the Multi-Copy Display the current setting value.)



5. Press the Clear Key to clear the current setting value.
6. With the old setting value used as reference, enter the new setting value using the appropriate Multi-Copy Keys.

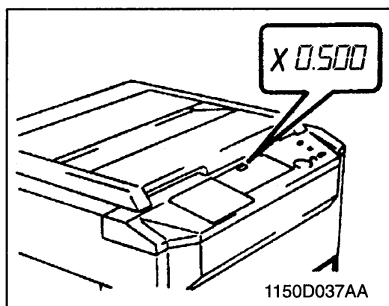
### NOTE

If dimension A on the copy is smaller than 8.5 mm, decrease the setting value.  
If dimension A on the copy is greater than 11.5 mm, increase the setting value.

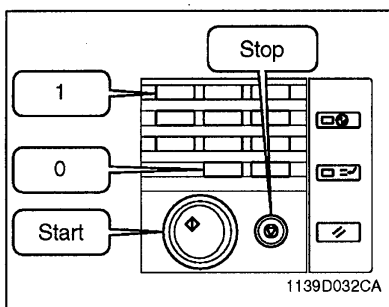


7. Press the Start Key to validate the new setting.
8. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
9. Make two single copies and check for leading edge registration on the second copy. (If it does not meet the requirement, perform steps 2 through 9 again.)

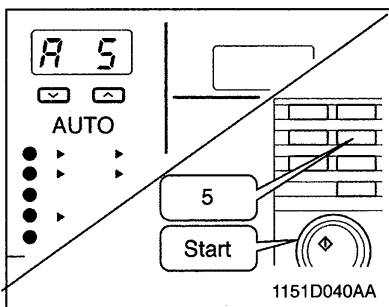
## Reduction



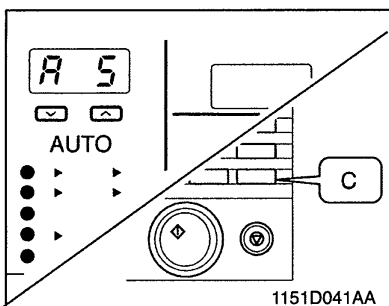
1. After the leading edge registration in the enlargement mode has been adjusted, make two single copies in a reduction mode ( $\times 0.500$ ) and check for leading edge registration on the second copy.



2. If the registration does not meet the requirement, go to the control panel and press the Stop Key, "0". Stop Key, and "1", in that order, to enter the Tech. Rep. Mode.
3. Press the Stop Key and then the Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows "A.")



4. Press "5" and the Start Key. (Then, the Magnification Ratio Indicator shows "A5" and the Multi-Copy Display the current setting value.)

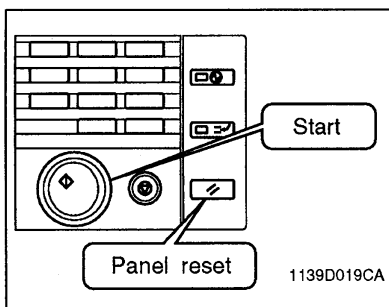


5. Press the Clear Key to clear the current setting value.
6. With the old setting value used as reference, enter the new setting value using the appropriate Multi-Copy Keys.

### NOTE

*If dimension A on the copy is smaller than 8.5 mm, decrease the setting value.*

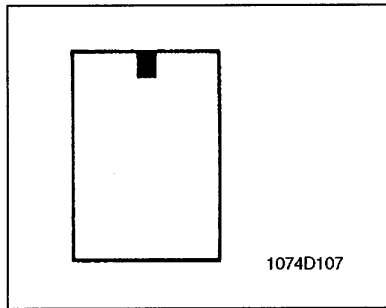
*If dimension A on the copy is greater than 11.5 mm, increase the setting value.*



7. Press the Start Key to validate the new setting.
8. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
9. Make two single copies and check for leading edge registration on the second copy. (If it does not meet the requirement, perform step 2 through 9 again.)

## (10) Adjustment of the Image Leading Edge Erase Width

### ◆ Requirement

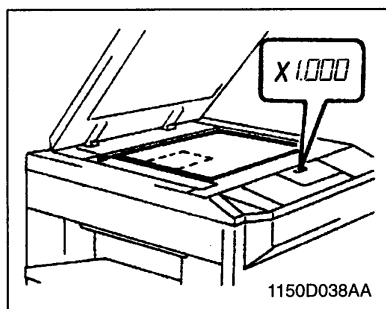


- Ready a test chart (A3 or 11" × 17") as shown on the left. Paint a 20 mm-long rectangle in black at the center of the test chart along its leading edge as shown. Adjust so that the erase width along the leading edge of the painted area measures 0.5 to 6.5 mm.

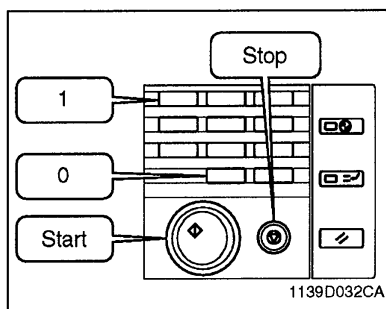
- Setting value range: 42 to 58
- Movement equivalent to 1 step of setting value: 0.75 mm
- Having a greater setting value results in a greater erase width.
- Having a smaller setting value results in a smaller erase width.

### ◆ Important

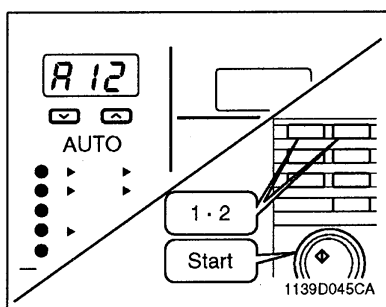
- This adjustment must be made after the leading edge registration adjustment has been completed.



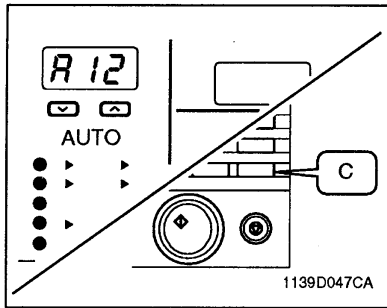
1. Place the test chart face down on the Original Glass and align its rear left corner with the  $\triangleright$  marker on the Original Width Scale on the left side of the platen. Then, lower the Original Cover.
2. Make two single copies in full size mode ( $\times 1.000$ ) and check for leading edge erase width on the second copy.



3. If the erase width does not meet the requirement, go to the control panel and press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
4. Press the Stop Key and then the Start Key to set the copier into the Adjust Mode. (At this time, the Magnification Ratio Indicator shows "A.")



5. Press Keys "1 & 2" and the Start Key. (Then, the Magnification Ratio Indicator shows "A 12" and the Multi-Copy Display the current setting value.)

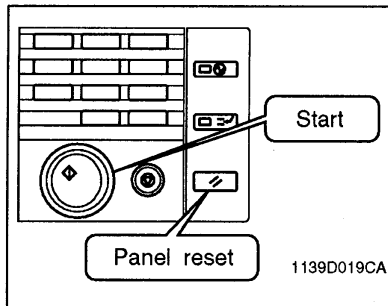


6. Press the Clear Key to clear the current setting value.
7. With the old setting value used as reference, enter the new setting value using the appropriate Multi-Copy Keys.

**NOTE**

*If the erase width on the copy is less than 0.5 mm, increase the setting value.*

*If the erase width on the copy exceeds 6.5 mm, decrease the setting value.*



8. Press the Start Key to validate the setting.
9. Press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.
10. Make two single copies and check for leading edge erase width on the second copy. (If it does not meet the requirement, perform steps 3 through 9 again.)

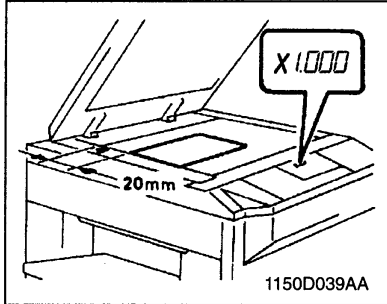
## (11) Adjustment of the Image Erase Lamp Position

### ◆ Requirement

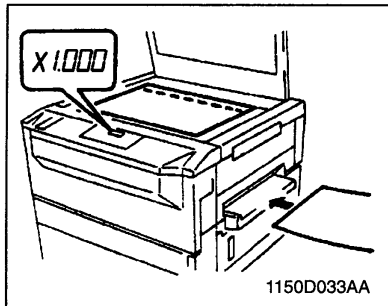
- Edge erase width: Within  $1 \pm 0.5$  mm

### ◆ Important

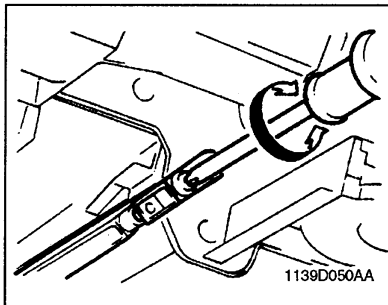
- This adjustment must be made after the reference positions of the Manual Bypass Table and 1st and 2nd Drawers have been adjusted.



1. With the Original Cover raised, place a sheet of A4 or 8-1/2"  $\times$  11" paper lengthwise on the Original Glass.



2. With the Original Cover raised, make a full size ( $\times 1.000$ ) copy.
3. Check the erase width on the front edge and turn the edge erase width adjusting screw as necessary to obtain an erase width of less than  $1 \pm 0.5$  mm.



### NOTE

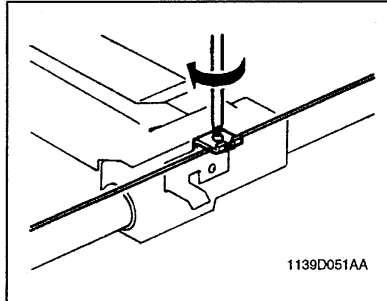
*Loosening the screw will make the erase width smaller.  
Tightening the screw will make the erase width greater.*

### 3-5. OTHER ADJUSTMENTS

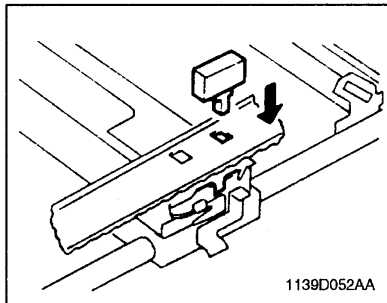
#### (1) Adjustment of the Scanner/Mirrors Carriage Position

##### ◆ Requirement

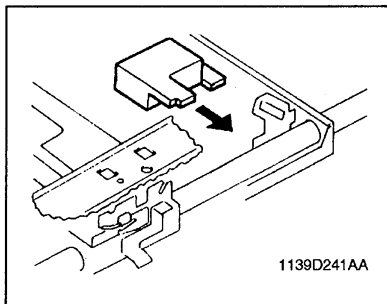
- With the Scanner positioned correctly with reference to the upper copier frame, there should be no gap between the Scanner/Mirrors Carriage and the Scanner/Mirrors Carriage Positioning Jig.



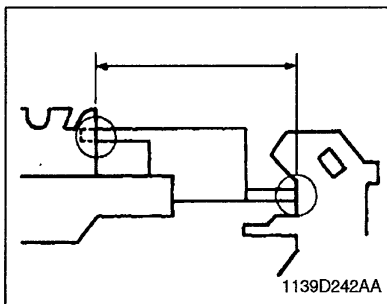
1. Remove the Original Cover, Original Scales, and Original Glass.
2. Temporarily tighten the screw on the Scanner Drive Cable Holding Bracket.



3. Align the rectangular hole in the upper copier frame with the U-groove in the Scanner, then insert the Scanner Positioning Jig into the hole.



4. Install the Scanner/Mirrors Carriage Positioning Jig between the Scanner and Mirrors Carriage.



5. Loosen the screw that has been temporarily tightened in step 2. Turn the helical gear of the Scan Pulley to press the Mirrors Carriage up against the Scanner/Mirrors Carriage Positioning Jig and the Scanner.
6. Tighten the screw on the Scanner Drive Cable Holding Bracket.

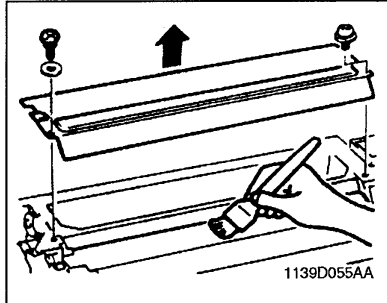
## (2) Adjustment of the Gap Between the Doctor Blade and Sleeve Roller

### ◆ Requirement

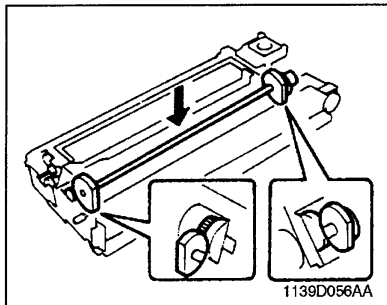
- The gap between the Doctor Blade and the Sleeve Roller should be  $0.35 \text{ mm} \pm 0.05 \text{ mm}$ .

### ◆ Important

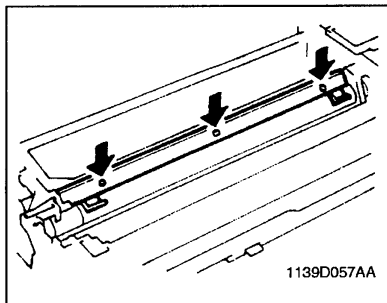
- Cover the PC Drum with the Drum Cloth to prevent it from being scratched.



1. Remove the Developer Scattering Prevention Plate.
2. Wipe the developer off the surface of the Sleeve Roller.



3. Install the Sleeve/Magnet Roller Positioning Jig onto the Imaging Unit.



4. Loosen the three screws securing the Doctor Blade. Insert the D.B. Adjusting Jigs into the space between the Doctor Blade and Sleeve Roller.
5. Press down the Doctor Blade until it positively contacts the D.B. Adjusting Jigs, then tighten the three screws to secure it.

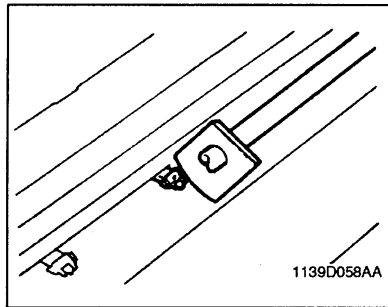
### (3) Adjustment of the PC Drum Paper Separator Fingers Position

#### ◆ Requirement

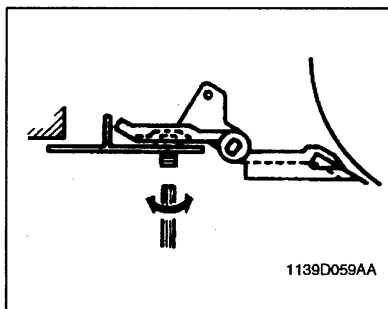
- The gap between the PC Drum and the PC Drum Paper Separator Fingers should be  $1.0 \pm 0.5$  mm when the Separator Solenoid is in the deenergized position.

#### ◆ Important

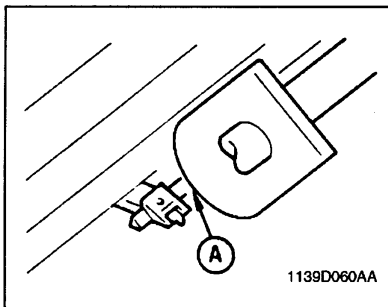
- Cover the PC Drum with the Drum Cloth to prevent it from being scratched.
- Use care not to deform the Separator Fingers during the adjustment procedure.
- Press part A shown below up against the PC Drum Paper Separator Fingers Positioning Jig for the adjustment (to prevent the Paper Separator Fingers from being deformed).



1. Install the Sleeve/Magnet Roller Positioning Jig, to which the PC Drum Paper Separator Fingers Positioning Jig has been fitted, onto the Imaging Unit.



2. Turn the set screw on each of the two Finger Holders as necessary for the adjustment.



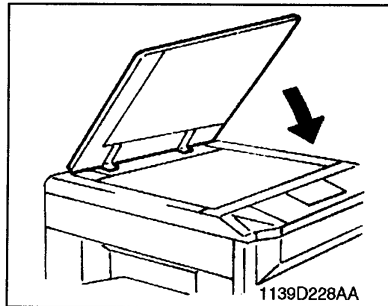
3. Ensure that part A contacts the PC Drum Paper Separator Fingers Positioning Jig when the Separator Solenoid is in the deenergized position.



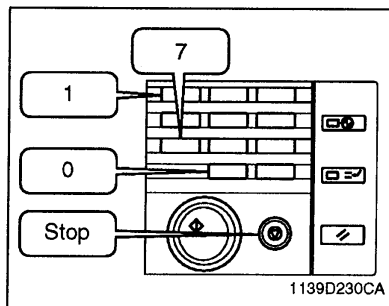
#### (4) Adjustment of the Original Size Detecting Board

##### ◆ Important

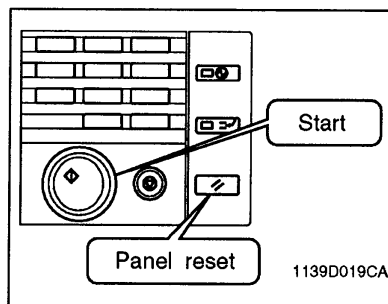
- This adjustment must be made after the Original Size Detecting Board has been replaced.



1. Lower the Original Cover with no paper on the Original Glass.



2. On the control panel, press the Stop Key, "0," Stop Key, and "1," in that order, to enter the Tech. Rep. Mode.
3. Press Keys "1" and "7" to set the copier into the F7 Test Mode. (At this time, the Multi-Copy Display shows "F7.")



4. Press the Start Key to let the copier make the adjustment.

##### **NOTE**

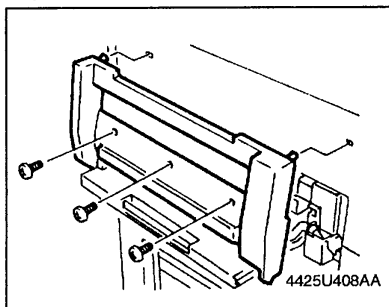
*During the adjustment, the Start Key is lit up orange.  
It turns to green as soon as the adjustment is completed.  
(It takes about 2 sec. to make the adjustment.)*

5. After the adjustment has been made, press the Panel Reset Key twice (or turn OFF the Power Switch) to return the copier back to the normal mode.

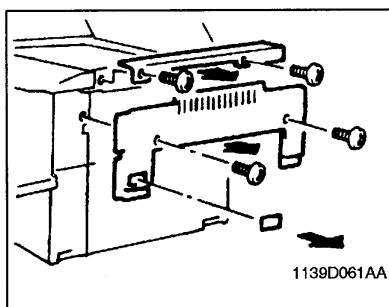
## 4 MISCELLANEOUS

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### 4-1. INSTALLATION OF THE PLUG-IN COUNTER MOUNTING BRACKET (OPTION)



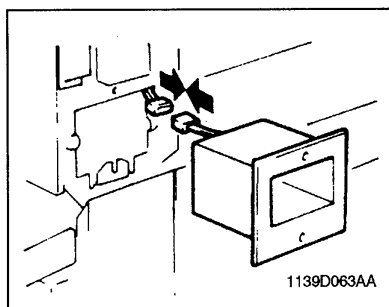
1. Remove the Middle Right Cover.



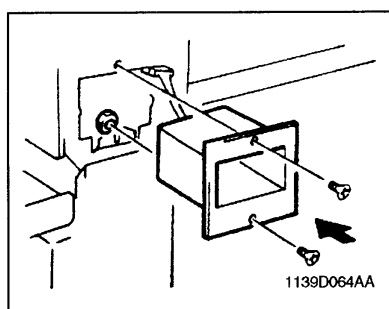
2. Remove the Counter Cover.

3. Remove the Upper Right Cover.

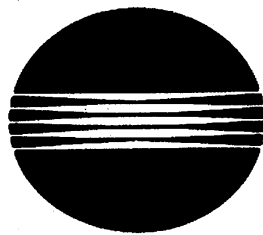
4. Remove the Right Cover.



5. Connect the Plug-In Counter Connector.



6. Secure the Plug-In Counter Mounting Bracket by tightening the two screws.



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avoid disclosure of  
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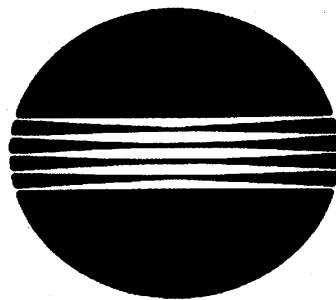
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Printed in Japan

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## SWITCHES ON PWBs/ TECH. REP. SETTINGS



MINOLTA

# CONTENTS

<b>1</b>	<b>PRECAUTIONS FOR HANDLING THE PWBs</b>	S-1
	1-1. Precautions for Transportation and Storage	S-1
	1-2. Precautions for Replacement and Inspection	S-1
<b>2</b>	<b>CONTROL PANEL KEYS AND INDICATORS</b>	S-2
<b>3</b>	<b>FUNCTIONS OF SWITCHES AND OTHER PARTS ON PWBs</b>	S-4
	3-1. PWB Location	S-4
	3-2. Tech. Rep. Setting Switches Board	S-4
<b>4</b>	<b>USER MODE</b>	S-6
	4-1. Functions Available from the User Mode	S-6
	4-2. User Mode Setting Procedure	S-6
	4-3. User Mode Setting Details	S-7
<b>5</b>	<b>SERVICE MODE</b>	S-12
	5-1. Service Mode Function Tree	S-12
	5-2. Entering the Service Mode	S-13
	5-3. Settings in the Service Mode	S-14
	1. Test	S-14
	2. Tech. Rep. Choice	S-16
	3. Altering Fixed Zoom Ratios	S-20
	4. PM Counter and Ports/Options Counter	S-20
	5. Paper Size Counter	S-21
	6. Misfeed Counter	S-22
	7. Malfunction Counter	S-23
	8. Parts/Supplies Life Counter	S-24
	9. Paper Size Input	S-25
	10. Display	S-25
<b>6</b>	<b>ADJUST MODE</b>	S-26
	6-1. Functions Available in the Adjust Mode	S-26
	6-2. Entering the Adjust Mode	S-26
	6-3. Settings in the Adjust Mode	S-27
<b>7</b>	<b>FUNCTION SETTING REQUIREMENTS AT REPLACEMENT OF PARTS</b>	S-29
	Table of Function Setting Requirements at Replacement of Parts	S-29

# **1 PRECAUTIONS FOR HANDLING THE PWBs**

## **1-1. Precautions for Transportation and Storage**

- a) Before transporting or storing the PWBs, put them in protective conductive cases or bags so that they are not subjected to high temperature (and they are not exposed to direct sunlight).
- b) Protect the PWBs from any external force so that they are not bent or damaged.
- c) Once the PWB has been removed from its conductive case or bag, never place it directly on an object that is easily charged with static electricity (such as a carpet or plastic bag).
- d) Do not touch the parts and printed patterns on the PWBs with bare hands.

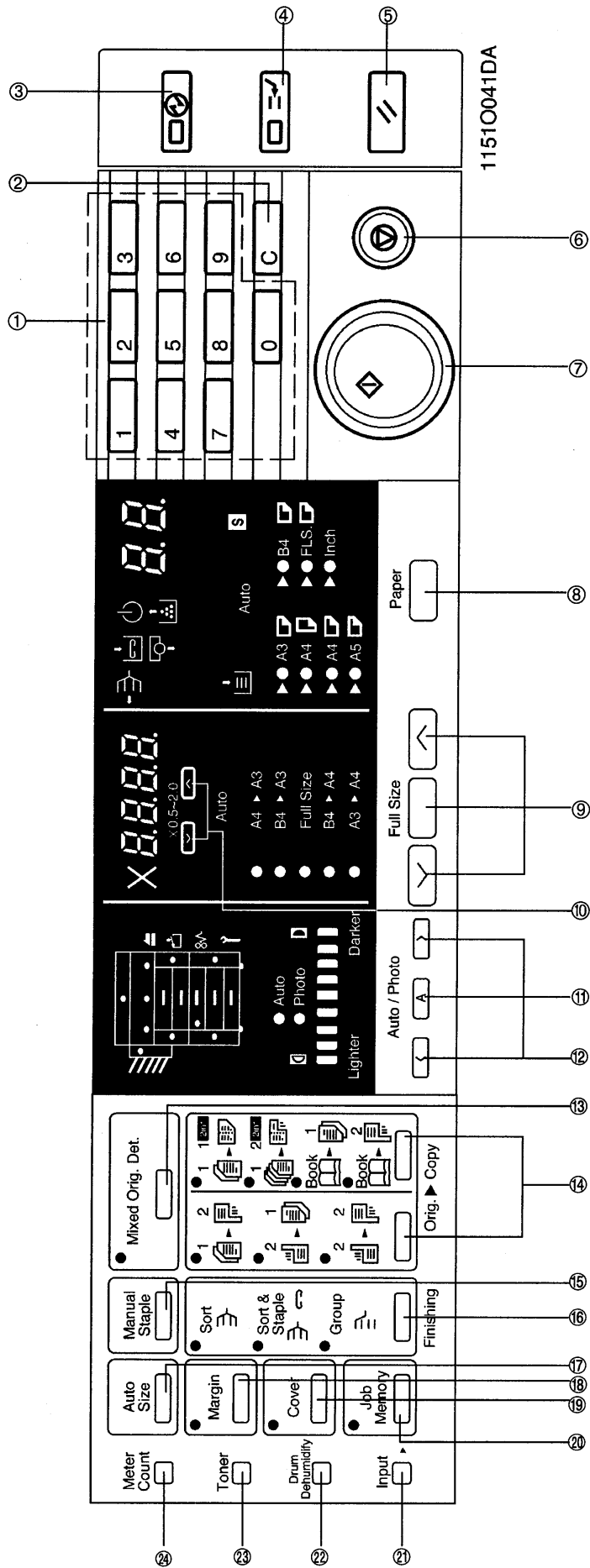
## **1-2. Precautions for Replacement and Inspection**

- a) Whenever replacing the PWB, make sure that the power cord of the copier has been unplugged.
- b) When the power is on, the connectors should never be plugged in or unplugged.
- c) Use care not to strap the pins of an IC with a metal tool.
- d) When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch the metal part to discharge static electricity before touching the PWB.

## 2 CONTROL PANEL KEYS AND INDICATORS

\* For more details, see the "Operator's Manual" shipped with the copier.

- ① 10-Keys
  - Numeric keypad used for setting the number of copies to be made, zoom ratio, and Tech. Rep. mode settings.
- ② Clear Key
  - Clear the number-of-copies setting, zoom ratio, choice modes setting.
- ③ Energy Saver Key
  - Sets the copier into the Energy Saver mode.
- ④ Interrupt Key
  - Sets the copier into, or lets it leave, the Interrupt mode.
- ⑤ Panel Reset Key
  - Resets the copier to the initial mode.
- ⑥ Stop Key
  - Stops a multi-copy cycle or a test (F\*) operation.
- ⑦ Start Key
  - Starts a multi-copy cycle or a test (F\*) operation.
- ⑧ Paper Select Key
  - Selects the paper source.
- ⑨ Zoom Ratio Select Key
  - Selects a fixed zoom ratio.
- ⑩ Zoom Up/Down Keys
  - Changes the zoom ratio manually.
- ⑪ Auto Exposure Mode Key
  - Selects either the Auto or Manual Exposure, or Photo mode.
- ⑫ Exposure Control Keys
  - Selects the exposure level.
- ⑬ Mixed Original Detection Key
  - Selects the Mixed Original mode.
- ⑭ Orig. ► Copy Key
  - Selects the original-and-copy type.
- ⑮ Manual Staple Key
  - Effects manual stapling of copies.
- ⑯ Finishing Key
  - Selects the finishing type.
- ⑰ Auto Size Key
  - Selects the Auto Size mode.
- ⑱ File Margin Key
  - Selects the Margin mode.
- ⑲ Cover Key
  - Selects the Cover mode.
- ⑳ Job Memory Select Key
  - Calls up a job program previously stored in memory.
  - Stores a job program when used in combination with the Input key.
- ㉑ Job Memory Input Key
  - Stores a job program in, or erases it from, memory.
- ㉒ Drum Dehumidify Key
  - Runs a Drum Dehumidify cycle.
- ㉓ Auxiliary Toner Replenishing Key
  - Starts an auxiliary toner replenishing sequence.
- ㉔ Meter Count Key
  - Gives a display of each of the current counts of different electronic counters of the copier.



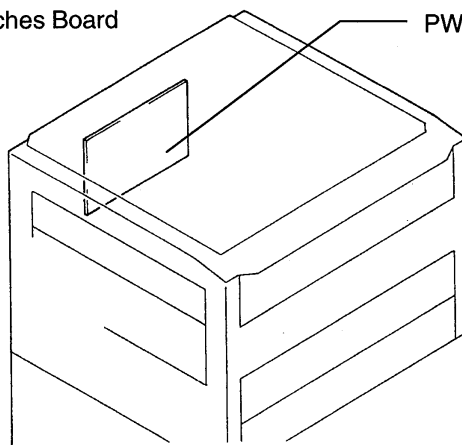


### 3 FUNCTIONS OF SWITCHES AND OTHER PARTS ON PWBs

#### 3-1. PWB Location

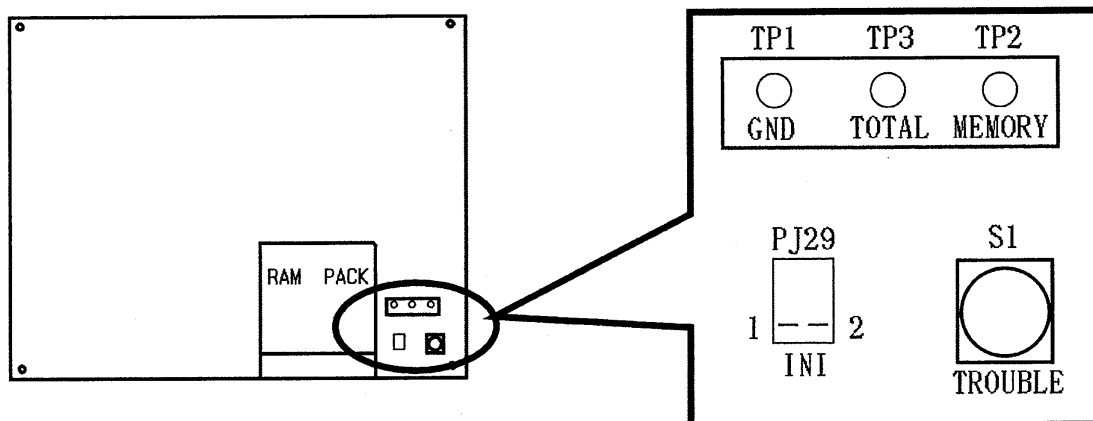
Tech. Rep. Setting Switches Board

PWB-A Board



1151S001AA

#### 3-2. Tech. Rep. Setting Switches Board



1151S002AA

Symbol	Name	Description
S1	Trouble Reset Switch	Resets all malfunctions including Exposure Lamp (C04XX) and fusing (C05XX) malfunctions.
PJ2	Initialize Points	Forcibly resets a misfeed or malfunction that occurred due to incorrect operation, etc. when it cannot be reset by opening and closing the Front Door and turning ON S1.
TP1	GND Test Point	Ground terminal used for memory clear.
TP2	Memory Clear Test Point	Initializes all data except those counted by the electronic counters.

<Clearing Procedures>

● Initialize Points PJ2

1. Turn OFF the Power Switch.
2. With PJ2 closed, turn ON the Power Switch.
3. In approx. 5 sec., open PJ2.

● Memory Clear Test Point TP2

1. Turn OFF the Power Switch.
2. With the circuit across TP1 and 2 closed, turn ON the Power Switch.
3. In approx. 5 sec., open the circuit across TP1 and 2.

**NOTE**

- If an erratic operation or display occurs, perform the clearing procedures in the order of PJ2 and TP2.
- When memory clear has been performed, make the necessary settings again.

<List of Data Cleared by Switches and Points>

Clearing Means Data Cleared	Front Door Open/Close	Trouble Reset Switch (S1)	Initialize Points (PJ2)	Memory Clear Test Point (TP2)
Misfeed display	○	○	○	○
Malfunction display (excluding Exposure Lamp and fusing malfunctions)	○	○	○	○
Malfunction display (including Exposure Lamp and fusing malfunctions)	—	○	○	○
Erratic operation/display	—	—	○	○
User mode	—	—	—	○
Service mode	—	—	—	○
F3/5/8 adjustment values	—	—	—	○
Adjust mode	—	—	—	○

○ : Cleared      — : Not cleared

## 4 USER MODE

- This mode is used to make various settings according to the user's needs.

### 4-1. Functions Available from the User Mode

No.	Function
0	Mixed original detection
4	Lightweight original
7	Auto power OFF disabling
9	File margin
10	Priority paper size/source
12	APS/AMS/Manual priority
13	Optimum exposure level
14	Priority manual exposure level
15	Finishing mode priority
18	Priority orig. ► copy type

No.	Function
20	Auto clear ON/OFF
21	Energy Saver ON timing
23	Auto clear for Plug-In Counter
24	Sort/Non-Sort switching ON/OFF
28	Auto power OFF timing
51	Special paper setting (1st Drawer)
52	Special paper setting (2nd Drawer)
53	Special paper setting (3rd Drawer)
54	Special paper setting (4th Drawer)
55	Special paper setting (5th Drawer)

### 4-2. User Mode Setting Procedure

#### <Setting Procedure>

1. Hold down the Panel Reset key for about 3 seconds to set the copier into the User mode. ("U" appears on the Zoom Ratio Indicator.)
2. From the 10-Keys, enter the number assigned to the desired function. (The number entered appears following the letter "U" on the Zoom Ratio Indicator.)
3. Press the Start key. (Then, the current setting for that particular function appears on the Multi-Copy Display.)
4. Press the Clear key to clear the old setting and, using the 10-key Pad, enter the new setting.
5. Make a new setting.
6. Press the Start key to validate the entry of the new setting.

#### NOTE:

*If the setting data entered is outside the specifications, it is not validated and is shown blinking.*

#### <Resetting Procedure>

- Press the Panel Reset key to return to the Basic screen.

[User Mode]

1151SBS0403A

### 4-3. User Mode Setting Details

1150SBS040301A

Function No.	Setting (The default is <b>Highlighted</b> .)							
U-0	<p>&lt;Mixed Original Detection&gt;            Select whether to turn ON the Mixed Original Detection function or not (high-speed processing).            ON: The copier enables its Auto Paper Selection (APS) or Auto Size Selection (AMS) function for all originals loaded in the ADF (i.e., it can make copies from originals of assorted sizes loaded in a set).            OFF: The copier enables its APS/AMS function only for the first original loaded in the ADF.</p> <table> <tr> <td>Data</td><td>0</td><td><b>1</b></td></tr> <tr> <td>Description</td><td>Mixed Original Detection function ON</td><td>Mixed Original Detection function OFF (high-speed processing)</td></tr> </table>		Data	0	<b>1</b>	Description	Mixed Original Detection function ON	Mixed Original Detection function OFF (high-speed processing)
Data	0	<b>1</b>						
Description	Mixed Original Detection function ON	Mixed Original Detection function OFF (high-speed processing)						
U-4	<p>&lt;Lightweight Original&gt;            Select whether to turn ON the Lightweight Original function or not when the ADF is used.</p> <table> <tr> <td>Data</td><td><b>0</b></td><td>1</td></tr> <tr> <td>Description</td><td>Normal The original is pressed against the Original Width Scale when stopped.</td><td>Lightweight Original The original is not pressed against the Original Width Scale when stopped.</td></tr> </table>		Data	<b>0</b>	1	Description	Normal The original is pressed against the Original Width Scale when stopped.	Lightweight Original The original is not pressed against the Original Width Scale when stopped.
Data	<b>0</b>	1						
Description	Normal The original is pressed against the Original Width Scale when stopped.	Lightweight Original The original is not pressed against the Original Width Scale when stopped.						
U-7	<p>&lt;Auto Power OFF Disabling&gt;            Select whether or not to allow the user to select "0: Disabling Auto Power OFF" of U-28 "Auto Power OFF Timing".</p> <table> <tr> <td>Data</td><td><b>0</b></td><td>1</td></tr> <tr> <td>Description</td><td>disabling</td><td>Enabled</td></tr> </table>		Data	<b>0</b>	1	Description	disabling	Enabled
Data	<b>0</b>	1						
Description	disabling	Enabled						
U-9	<p>&lt;File Margin&gt;            Select the margin making method in the File Margin mode.</p> <table> <tr> <td>Data</td><td><b>0</b></td><td>1</td></tr> <tr> <td>Description</td><td>File Margin mode when the original has a file margin.</td><td>File Margin mode when the original does not have a file margin.</td></tr> </table>		Data	<b>0</b>	1	Description	File Margin mode when the original has a file margin.	File Margin mode when the original does not have a file margin.
Data	<b>0</b>	1						
Description	File Margin mode when the original has a file margin.	File Margin mode when the original does not have a file margin.						

## [User Mode]

Function No.	Setting (The default is <b>Highlighted</b> .)																																																
U-10	<p>&lt;Priority Paper Size/Source&gt;</p> <p>Select the priority paper size or paper source selected when the copier is set into the AMS or Manual mode.</p> <table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>0</td><td>A3 (L)</td><td>10</td><td>11" x 17" (L)</td></tr><tr><td>1</td><td>B4 (L)</td><td>11</td><td>11" x 14" (L)</td></tr><tr><td>2</td><td>A4 (L)</td><td>12</td><td>Legal (L)</td></tr><tr><td>3</td><td>B5 (L)</td><td>13</td><td>Letter (L)</td></tr><tr><td>4</td><td>A5 (L)</td><td>14</td><td>5-1/2" x 8-1/2" (L)</td></tr><tr><td>5</td><td>FLS (L)</td><td><b>15</b></td><td>Letter (C)</td></tr><tr><td><b>6</b></td><td>A4 (C)</td><td>20</td><td>1st Drawer</td></tr><tr><td>7</td><td>B5 (C)</td><td>21</td><td>2nd Drawer</td></tr><tr><td></td><td></td><td>22</td><td>3rd Drawer</td></tr><tr><td></td><td></td><td>23</td><td>4th Drawer</td></tr><tr><td></td><td></td><td>24</td><td>5th Drawer</td></tr></table> <p>Default: 15 (inch areas) / 6 (metric areas) L : lengthwise; C : crosswise <i>NOTE: If a paper size or source that does not exist is selected, the 1st Drawer (20) is automatically selected.</i></p>	Data	Description	Data	Description	0	A3 (L)	10	11" x 17" (L)	1	B4 (L)	11	11" x 14" (L)	2	A4 (L)	12	Legal (L)	3	B5 (L)	13	Letter (L)	4	A5 (L)	14	5-1/2" x 8-1/2" (L)	5	FLS (L)	<b>15</b>	Letter (C)	<b>6</b>	A4 (C)	20	1st Drawer	7	B5 (C)	21	2nd Drawer			22	3rd Drawer			23	4th Drawer			24	5th Drawer
Data	Description	Data	Description																																														
0	A3 (L)	10	11" x 17" (L)																																														
1	B4 (L)	11	11" x 14" (L)																																														
2	A4 (L)	12	Legal (L)																																														
3	B5 (L)	13	Letter (L)																																														
4	A5 (L)	14	5-1/2" x 8-1/2" (L)																																														
5	FLS (L)	<b>15</b>	Letter (C)																																														
<b>6</b>	A4 (C)	20	1st Drawer																																														
7	B5 (C)	21	2nd Drawer																																														
		22	3rd Drawer																																														
		23	4th Drawer																																														
		24	5th Drawer																																														
U-12	<p>&lt;APS/AMS/Manual Priority&gt;</p> <p>Select the priority copying mode that is automatically selected when the Power Switch is turned ON or Panel Reset key is pressed.</p> <table><tr><th>Data</th><td><b>0</b></td><td>1</td><td>2</td></tr><tr><th>Description</th><td>APS</td><td>AMS</td><td>Manual</td></tr></table>	Data	<b>0</b>	1	2	Description	APS	AMS	Manual																																								
Data	<b>0</b>	1	2																																														
Description	APS	AMS	Manual																																														
U-13	<p>&lt;Optimum Exposure Level&gt;</p> <p>Determine the optimum exposure level in the Auto as well as the Manual Exposure mode.</p> <table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>46</td><td>Low level 4: - 2.0 steps</td><td><b>50</b></td><td>Standard ± 0 steps</td></tr><tr><td>47</td><td>Low level 3: - 1.5 steps</td><td>51</td><td>High level 1: +0.5 steps</td></tr><tr><td>48</td><td>Low level 2: - 1.0 steps</td><td>52</td><td>High level 2: +1.0 steps</td></tr><tr><td>49</td><td>Low level 1: - 0.5 steps</td><td></td><td></td></tr></table>	Data	Description	Data	Description	46	Low level 4: - 2.0 steps	<b>50</b>	Standard ± 0 steps	47	Low level 3: - 1.5 steps	51	High level 1: +0.5 steps	48	Low level 2: - 1.0 steps	52	High level 2: +1.0 steps	49	Low level 1: - 0.5 steps																														
Data	Description	Data	Description																																														
46	Low level 4: - 2.0 steps	<b>50</b>	Standard ± 0 steps																																														
47	Low level 3: - 1.5 steps	51	High level 1: +0.5 steps																																														
48	Low level 2: - 1.0 steps	52	High level 2: +1.0 steps																																														
49	Low level 1: - 0.5 steps																																																

## [User Mode]

Function No.	Setting (The default is <b>Highlighted</b> .)																																												
U-14	<p>&lt;Priority Manual Exposure Level&gt; Determine the priority exposure level for the Manual Exposure mode. The level determines the priority exposure level selected when the exposure mode is switched from the initial Auto to Manual, and when Manual Exposure is initially selected when power is turned ON.</p> <table><tr><th colspan="2">[Auto ► Manual]</th><th colspan="2">[Manual]</th></tr><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>0</td><td>Auto ► EXP.1</td><td>10</td><td>Manual EXP.1</td></tr><tr><td>1</td><td>Auto ► EXP.2</td><td>11</td><td>Manual EXP.2</td></tr><tr><td>2</td><td>Auto ► EXP.3</td><td>12</td><td>Manual EXP.3</td></tr><tr><td>3</td><td>Auto ► EXP.4</td><td>13</td><td>Manual EXP.4</td></tr><tr><td><b>4</b></td><td>Auto ► EXP.5</td><td>14</td><td>Manual EXP.5</td></tr><tr><td>5</td><td>Auto ► EXP.6</td><td>15</td><td>Manual EXP.6</td></tr><tr><td>6</td><td>Auto ► EXP.7</td><td>16</td><td>Manual EXP.7</td></tr><tr><td>7</td><td>Auto ► EXP.8</td><td>17</td><td>Manual EXP.8</td></tr><tr><td>8</td><td>Auto ► EXP.9</td><td>18</td><td>Manual EXP.9</td></tr></table>	[Auto ► Manual]		[Manual]		Data	Description	Data	Description	0	Auto ► EXP.1	10	Manual EXP.1	1	Auto ► EXP.2	11	Manual EXP.2	2	Auto ► EXP.3	12	Manual EXP.3	3	Auto ► EXP.4	13	Manual EXP.4	<b>4</b>	Auto ► EXP.5	14	Manual EXP.5	5	Auto ► EXP.6	15	Manual EXP.6	6	Auto ► EXP.7	16	Manual EXP.7	7	Auto ► EXP.8	17	Manual EXP.8	8	Auto ► EXP.9	18	Manual EXP.9
[Auto ► Manual]		[Manual]																																											
Data	Description	Data	Description																																										
0	Auto ► EXP.1	10	Manual EXP.1																																										
1	Auto ► EXP.2	11	Manual EXP.2																																										
2	Auto ► EXP.3	12	Manual EXP.3																																										
3	Auto ► EXP.4	13	Manual EXP.4																																										
<b>4</b>	Auto ► EXP.5	14	Manual EXP.5																																										
5	Auto ► EXP.6	15	Manual EXP.6																																										
6	Auto ► EXP.7	16	Manual EXP.7																																										
7	Auto ► EXP.8	17	Manual EXP.8																																										
8	Auto ► EXP.9	18	Manual EXP.9																																										
U-15	<p>&lt;Finishing Mode Priority&gt; Determine the priority finishing mode selected when the copier is equipped with a finishing option.</p> <table><tr><th>Data</th><td><b>0</b></td><td>1</td><td>2</td><td>3</td></tr><tr><th>Description</th><td>Non-Sort</td><td>Sort</td><td>Group</td><td>Sort-and-Staple</td></tr></table>	Data	<b>0</b>	1	2	3	Description	Non-Sort	Sort	Group	Sort-and-Staple																																		
Data	<b>0</b>	1	2	3																																									
Description	Non-Sort	Sort	Group	Sort-and-Staple																																									
U-18	<p>&lt;Priority Orig. ► Copy Type&gt; Determine the orig. ► copy type automatically selected when the Power Switch is turned ON or Panel Reset key is pressed. The setting made in "C-40 (Orig. ► Copy Type)" available as one of the Tech. Rep. Choice functions determines the details of orig. ► copy type selected by the setting of this function.</p> <table><tr><th colspan="2">[When "0" is set for C-40]</th><th colspan="2">[When "1" is set for C-40]</th></tr><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td><b>0</b></td><td>1 ➡ 1</td><td><b>0</b></td><td>1 ➡ 2</td></tr><tr><td>1</td><td>1 ➡ 2</td><td>1</td><td>1 ➡ 2</td></tr><tr><td>2</td><td>2 ➡ 2</td><td>2</td><td>2 ➡ 2</td></tr><tr><td>3</td><td>1 ➡ 1 2in1</td><td>3</td><td>1 ➡ 2 2in1</td></tr><tr><td>4</td><td>1 ➡ 2 2in1</td><td>4</td><td>1 ➡ 2 2in1</td></tr></table> <p>NOTE: 2in1 = Enabled when an ADF is mounted. 2 = Enabled when a Duplex Unit is mounted.</p>	[When "0" is set for C-40]		[When "1" is set for C-40]		Data	Description	Data	Description	<b>0</b>	1 ➡ 1	<b>0</b>	1 ➡ 2	1	1 ➡ 2	1	1 ➡ 2	2	2 ➡ 2	2	2 ➡ 2	3	1 ➡ 1 2in1	3	1 ➡ 2 2in1	4	1 ➡ 2 2in1	4	1 ➡ 2 2in1																
[When "0" is set for C-40]		[When "1" is set for C-40]																																											
Data	Description	Data	Description																																										
<b>0</b>	1 ➡ 1	<b>0</b>	1 ➡ 2																																										
1	1 ➡ 2	1	1 ➡ 2																																										
2	2 ➡ 2	2	2 ➡ 2																																										
3	1 ➡ 1 2in1	3	1 ➡ 2 2in1																																										
4	1 ➡ 2 2in1	4	1 ➡ 2 2in1																																										

## [User Mode]

Function No.	Setting (The default is <b>Highlighted</b> .)																												
U-20	<p>&lt;Auto Clear ON/OFF&gt;</p> <p>Select whether or not to activate the auto clear (panel reset) function after the lapse of a given period of time after a copy cycle has been completed or a key on the control panel has been operated.</p> <table><tr><td>Data</td><td>0</td><td>1</td><td><b>2</b></td></tr><tr><td>Description</td><td>Disabled</td><td>Enabled: 30 sec.</td><td>Enabled: 1 min.</td></tr></table>	Data	0	1	<b>2</b>	Description	Disabled	Enabled: 30 sec.	Enabled: 1 min.																				
Data	0	1	<b>2</b>																										
Description	Disabled	Enabled: 30 sec.	Enabled: 1 min.																										
U-21	<p>&lt;Energy Saver ON Timing&gt;</p> <p>Select whether or not to set the copier into the Energy Saver mode after the lapse of a given period of time after a copy cycle has been completed or a key on the control panel has been operated.</p> <table><tr><td>Data</td><td>Description</td><td>Data</td><td>Description</td></tr><tr><td>1</td><td>Enabled: 1 min.</td><td>.</td><td>.</td></tr><tr><td>2</td><td>Enabled: 2 min.</td><td>.</td><td>.</td></tr><tr><td>.</td><td>.</td><td>.</td><td>.</td></tr><tr><td>.</td><td>.</td><td>97</td><td>Enabled: 97 min.</td></tr><tr><td>.</td><td>.</td><td>98</td><td>Enabled: 98 min.</td></tr><tr><td><b>15</b></td><td>Enabled: 15 min.</td><td>99</td><td>Enabled: 240 min.</td></tr></table> <p>NOTE: Except for 99, the setting data equals the time in minutes.</p>	Data	Description	Data	Description	1	Enabled: 1 min.	.	.	2	Enabled: 2 min.	.	.	.	.	.	.	.	.	97	Enabled: 97 min.	.	.	98	Enabled: 98 min.	<b>15</b>	Enabled: 15 min.	99	Enabled: 240 min.
Data	Description	Data	Description																										
1	Enabled: 1 min.	.	.																										
2	Enabled: 2 min.	.	.																										
.	.	.	.																										
.	.	97	Enabled: 97 min.																										
.	.	98	Enabled: 98 min.																										
<b>15</b>	Enabled: 15 min.	99	Enabled: 240 min.																										
U-23	<p>&lt;Auto Clear for Plug-In Counter&gt;</p> <p>Select whether to activate the auto clear (panel reset) function when the Plug-In Counter is pulled out.</p> <table><tr><td>Data</td><td>0</td><td><b>1</b></td></tr><tr><td>Description</td><td>Auto clear is not activated.</td><td>Auto clear is activated.</td></tr></table>	Data	0	<b>1</b>	Description	Auto clear is not activated.	Auto clear is activated.																						
Data	0	<b>1</b>																											
Description	Auto clear is not activated.	Auto clear is activated.																											
U-24	<p>&lt;Sort/Non-Sort Switching ON/OFF&gt;</p> <p>Select whether to enable or disable the function that automatically switches between the Sort and Non-Sort mode depending on the number of originals loaded in the ADF when the copier is equipped with an ADF and finishing option.</p> <table><tr><td>Data</td><td>0</td><td><b>1</b></td></tr><tr><td>Description</td><td>OFF (disabled)</td><td>ON (enabled)</td></tr></table>	Data	0	<b>1</b>	Description	OFF (disabled)	ON (enabled)																						
Data	0	<b>1</b>																											
Description	OFF (disabled)	ON (enabled)																											

## [User Mode]

Function No.	Setting (The default is <b>Highlighted</b> .)																												
U-28	<p>&lt;Auto Power OFF Timing&gt;</p> <p>Select whether or not to enable the auto power OFF function that turns power off automatically after the lapse of a given period of time after a copy cycle has been completed or a key on the control panel has been operated.</p> <table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>0</td><td>Disabled</td><td>.</td><td>.</td></tr><tr><td>1</td><td>Enabled: 1 min.</td><td>.</td><td>.</td></tr><tr><td>2</td><td>Enabled: 2 min.</td><td>.</td><td>.</td></tr><tr><td>.</td><td>.</td><td>97</td><td>Enabled: 97 min.</td></tr><tr><td>.</td><td>.</td><td>98</td><td>Enabled: 98 min.</td></tr><tr><td><b>60</b></td><td>Enabled: 60 min.</td><td>99</td><td>Enabled: 240 min.</td></tr></table> <p>NOTES:</p> <p>1. Except for 0 and 99, the setting data equals the time in minutes.</p> <p>2. "0" cannot be selected for this function if U-7 (Auto Power OFF Disabling) available as one of the User Mode functions is set to "0".</p>	Data	Description	Data	Description	0	Disabled	.	.	1	Enabled: 1 min.	.	.	2	Enabled: 2 min.	.	.	.	.	97	Enabled: 97 min.	.	.	98	Enabled: 98 min.	<b>60</b>	Enabled: 60 min.	99	Enabled: 240 min.
Data	Description	Data	Description																										
0	Disabled	.	.																										
1	Enabled: 1 min.	.	.																										
2	Enabled: 2 min.	.	.																										
.	.	97	Enabled: 97 min.																										
.	.	98	Enabled: 98 min.																										
<b>60</b>	Enabled: 60 min.	99	Enabled: 240 min.																										
U-51 to 55	<p>&lt;Special Paper Setting&gt;</p> <p>Designates each drawer of the copier for special paper.</p> <p>U-51: 1st Drawer U-52: 2nd Drawer U-53: 3rd Drawer U-54: 4th Drawer U-55: 5th Drawer</p> <table><tr><th>Data</th><td><b>0</b></td><td>1</td></tr><tr><th>Description</th><td>Plain paper</td><td>Special paper</td></tr></table> <p>NOTE: The APS mode is disabled if "1" is set.</p>	Data	<b>0</b>	1	Description	Plain paper	Special paper																						
Data	<b>0</b>	1																											
Description	Plain paper	Special paper																											

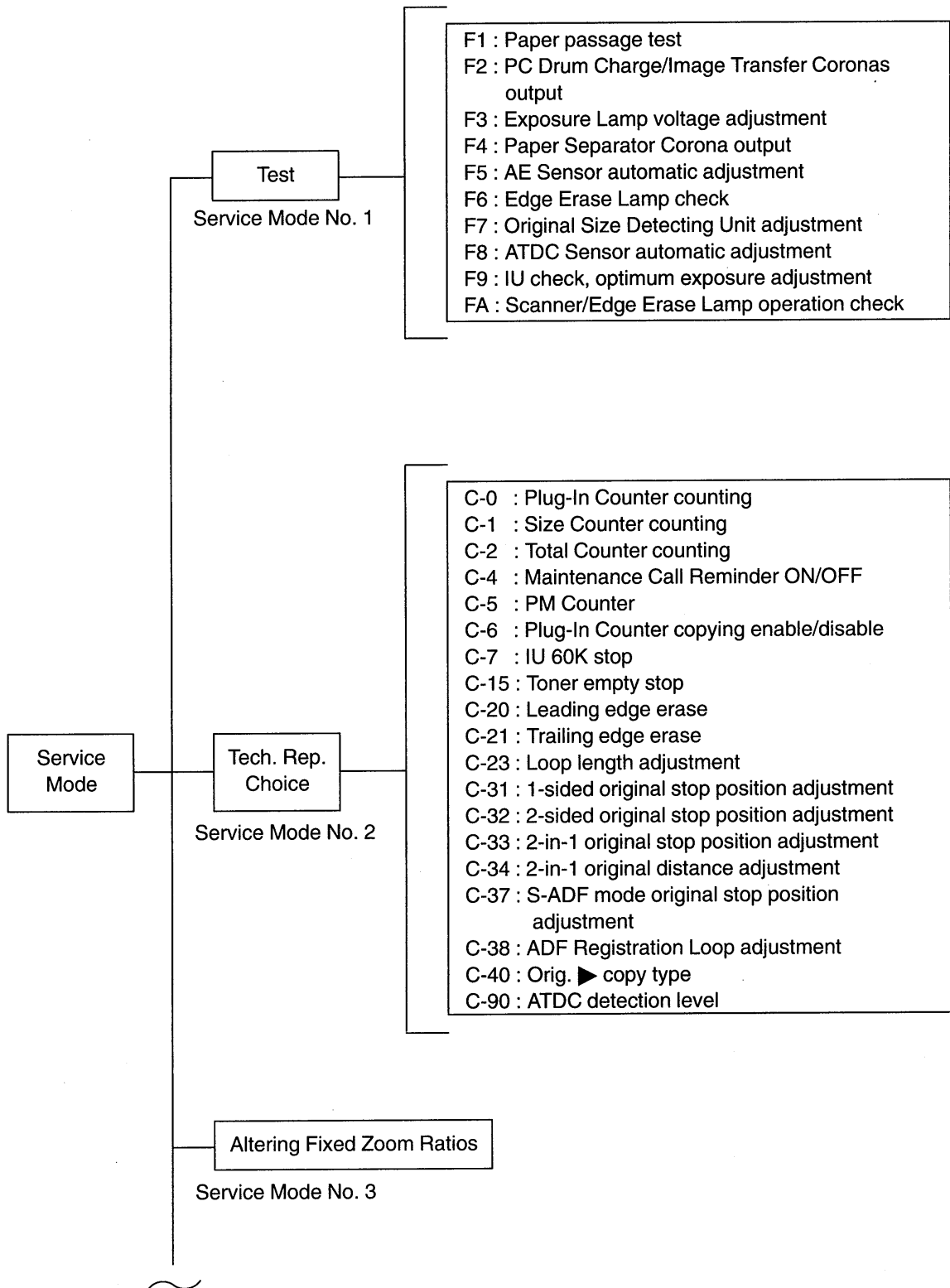


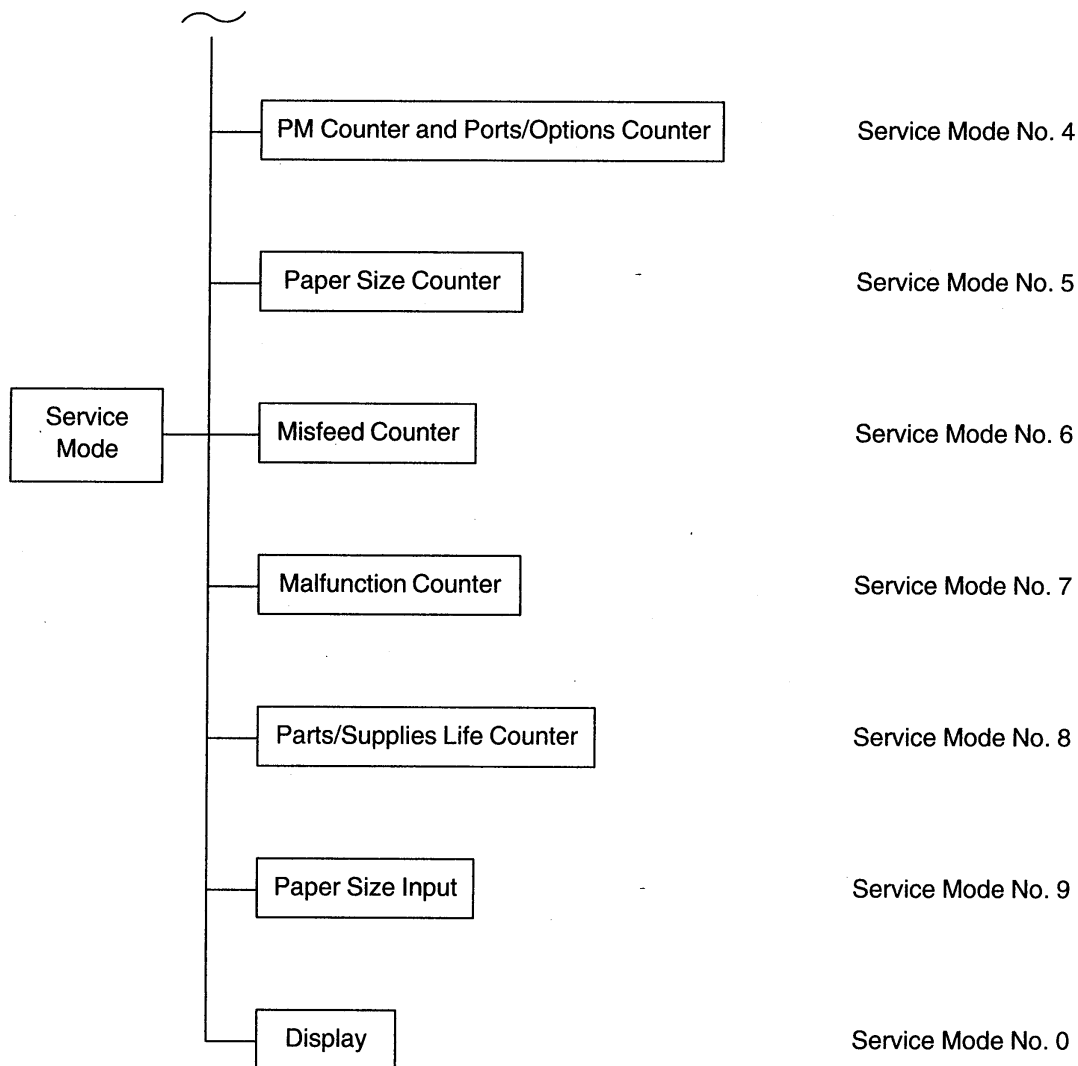
## 5 SERVICE MODE

- This mode is used by the Tech. Rep. to set, check, adjust, and/or program various service functions.

1150SBS0501A

### 5-1. Service Mode Function Tree



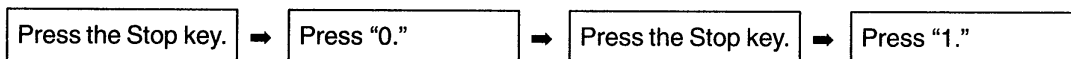


1151SBS0502A

## 5-2. Entering the Service Mode

### <Procedure>

1. Perform the following steps to set the copier into the Service mode.



2. From the 10-Keys, press the number corresponding to the service mode no. assigned.
3. Perform the necessary steps for the function selected.

### <Leaving the Service Mode>

- Press the Panel Reset key twice to go back to the Basic screen.

### 5-3. Settings in the Service Mode

#### 1. Test

- This function allows the Tech. Rep. to perform various functional tests and adjustments.

##### <Setting Procedure>

1. Enter the number assigned to the desired test from the 10-Keys. (The number appears on the Multi-Copy Display.)
2. Press the Start key to start the test.
3. Press the Stop key to stop the test.

##### <Test Copy>

- A test copy can be made by entering "F3, F5" of the Test No., holding down the Stop key and pressing the Start key.

##### <Leaving the Function>

- Press the Panel Reset key twice to go back to the Basic screen.

#### [Service Mode ► Test]

Test No.	Description
F1	<p>&lt;Paper Passage Test&gt;</p> <p>A paper passage test is carried out to check for correct sensor operation without having to wait for the copier to complete warming up. It provides the following two modes:</p> <ol style="list-style-type: none"> <li>1. Normal mode (The Zoom Ratio Indicator shows "On.")</li> <li>2. Load OFF mode, in which some parts are put in an inactive state (The Zoom Ratio Indicator shows "Off.")</li> </ol> <p>&lt;Procedure&gt;</p> <ol style="list-style-type: none"> <li>1. Using the Zoom Up/Down key, select either one of the two modes.</li> <li>2. Press the Start key.</li> </ol> <p>&lt;To quit&gt;</p> <ul style="list-style-type: none"> <li>• Press the Stop key, or the test stops when paper runs out.</li> </ul>
F2	<p>&lt;PC Drum Charge/Image Transfer Coronas Output&gt;</p> <p>Do not use this test as it is only for factory adjustment.</p>
F3	<p>&lt;Exposure Lamp Voltage Adjustment&gt;</p> <p>This test allows the Tech. Rep. to adjust the maximum Exposure Lamp voltage and the optimum exposure setting in the Manual Exposure mode. (It runs for 30 sec.)</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>NOTE</b> For details, see DIS/REASSEMBLY, ADJUSTMENT.</p> </div>
F4	<p>&lt;Paper Separator Corona Output&gt;</p> <p>Do not use this test as it is only for factory adjustment.</p>
F5	<p>&lt;AE Sensor Automatic Adjustment&gt;</p> <p>This test automatically adjusts the AE Sensor. (It runs for 5 sec.)</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>NOTE</b> For details, see DIS/REASSEMBLY, ADJUSTMENT.</p> </div>

[Service Mode ► Test]

Test No.	Description
F6	<p>&lt;Edge Erase Lamp Check&gt; This test checks whether the Edge Erase Lamp turns ON and OFF properly. (It runs for one complete copy cycle.)</p> <p>&lt;Procedure&gt;  <ul style="list-style-type: none"> <li>Press the Start key after the copier has completed warming up. This causes the lamp to make a checkered pattern.</li> </ul> </p>
F7	<p>&lt;Original Size Detecting Unit Adjustment&gt; This test automatically adjusts the Original Size Detecting Sensors, starting when the Start key is pressed. (It runs for 5 sec.)</p>
F8	<p>&lt;ATDC Sensor Automatic Adjustment&gt; This test automatically adjusts the ATDC Sensor. (It runs for about 5 min.)</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b> For details, see DIS/REASSEMBLY, ADJUSTMENT.</p> </div>
F9	<p>&lt;IU Check, Optimum Exposure Adjustment&gt; Do not use this test as it is only for factory adjustment.</p>
FA	<p>&lt;Scanner/Edge Erase Lamp Operation Check&gt; Do not use this test as it is only for factory adjustment.</p>

– Components Energized in the Tests –

Test Operation Component	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA
Main Drive Motor	○	○	○	○	○	○	–	○	○	–
PC Drum Drive Motor	○	○	○	○	○	○	–	○	○	–
Fan Motors	○	○	○	○	○	○	–	○	○	–
Toner Replenishing Motor	–	–	–	–	–	–	–	○	–	–
HV (PC Drum Charge, Image Transfer, grid)	*	○	–	–	–	○	–	○	○	–
Bias (Developing, Separator, seal)	*	–	○	○	○	○	–	○	○	–
Scanner	○	–	*	–	*	○	–	–	*	○
Paper Take-Up Roll	○	–	–	–	–	○	–	–	–	–
Paper Transport Rollers	○	–	–	–	–	○	–	–	–	–
Synchronizing Rollers	○	–	–	–	–	○	–	–	–	–
Exposure Lamp	*	–	○	–	○	○	–	–	○	–
Main Erase Lamp	○	○	○	○	○	○	–	○	○	–
Edge Erase Lamp	*	–	○	○	○	*	–	○	–	*
PC Drum Paper Separator Fingers	○	–	–	–	–	○	–	–	–	–
Misfeed detection	○	–	–	–	–	○	–	–	–	–
Malfunction detection	○	○	○	○	○	○	○	○	○	○

○ : Energized    – : Remain deenergized

\*F1 : Deenergized in the load OFF mode.

\*F3/5/9 : The Scanner stops at the TRON position.

\*F6 : Turned ON and OFF alternately to make a checkered pattern.

\*FA : The Edge Erase Lamp is controlled for the erase function based on A4 lengthwise or 8-1/2"x14".

## 2. Tech. Rep. Choice

- This function allows the Tech. Rep. to make various settings and adjustments.

### <Setting Procedure>

1. Press "2" from the 10-Keys. (The Zoom Ratio Indicator shows "C.")
2. Press the number assigned to the desired Tech. Rep. Choice. (The Zoom Ratio Indicator shows "C" plus the number of the chosen function.)
3. Press the Start key. (The Multi-Copy Display shows the current setting for the chosen function.)
4. Clear the current setting using the Clear key and enter the new setting from the 10-Key Pad.
5. Press the Start key to validate the new setting.

#### NOTE:

If the setting is illegal, it is not validated and is shown blinking.

### <Test Copy>

- A test copy can be made by entering "C" of the Tech. Rep. Choice No., holding down the Stop key and pressing the Start key.

### <Leaving the Function>

- Press the Panel Reset key twice to go back to the Basic screen.

## [Service Mode ► Tech. Rep. Choice]

Choice No.	Setting (The default is <b>Highlighted</b> .)				
C-0	<Plug-In Counter Counting>				
	Select the condition by which the Plug-In Counter count is increased.				
	Data	0	1		
	Description	Counts the number of sheets of paper fed out.	Counts the number of copy processes carried out.		
NOTE: See the Count-up Table for details.					
C-1	<Size Counter Counting>				
	Select the size of the paper to be counted by the Size Counter.				
	Data	0	1	2	3
	Description (Metric areas)	No count	A3	A3/B4	A3/B4/FLS
Description (Inch areas)	No count	11" x 17"	11" x 17", 8-1/2" x 14"	11" x 17", 8-1/2" x 14", 11" x 14"	
	NOTE: See the Count-up Table for details.				
C-2	<Total Counter Counting>				
	Select the conditions (paper size and 2-sided copying) by which the Total Counter count is increased.				
	Data	0	1	2	
	Description	1 count per 1 copy cycle	Multiple count-up	Multiple count-up	
NOTE: See the Count-up Table for details.					

Choice No.	Setting (The default is <div>Highlighted</div> .)																																																																																																																																																																							
	<div>&lt;Count-up Table&gt;</div> <table><tr><th colspan="2">Copying</th><th colspan="6">1-Sided</th><th colspan="6">2-Sided</th><th rowspan="4">Manual Bypass</th></tr><tr><th>Size</th><th>Sizes other than those set</th><th colspan="6">Set sizes</th><th>Sizes other than those set</th><th colspan="6">Set sizes</th></tr><tr><th rowspan="2">Total</th><th>Mode</th><th colspan="6">Mode</th><th>Mode</th><th colspan="6">Mode</th></tr><tr><th>0</th><th>1</th><th>2</th><th>0</th><th>1</th><th>2</th><th>0</th><th>1</th><th>2</th><th>0</th><th>1</th><th>2</th></tr><tr><td colspan="2">Total (mechanical, electronic)</td><td colspan="2">1</td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">2</td><td colspan="2">2</td><td colspan="2">4</td><td colspan="2">4</td><td>1</td></tr><tr><td colspan="2">Size (electronic)</td><td colspan="2">0</td><td colspan="2">1</td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">0</td><td colspan="2">2</td><td colspan="2">2</td><td>0</td><td>0</td></tr><tr><td colspan="2">2-Sided Total (electronic)</td><td colspan="2">0</td><td colspan="6">0</td><td>1</td><td>1</td><td colspan="2">2</td><td>1</td><td>1</td><td colspan="2">4</td><td>0</td></tr><tr><td colspan="2">2-Sided Size (electronic)</td><td colspan="2">0</td><td colspan="6">0</td><td colspan="4">0</td><td>1</td><td>1</td><td colspan="2">4</td><td>0</td></tr><tr><td rowspan="2">Plug-In (mechanical)</td><td>Counting copies</td><td colspan="2">1</td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">2</td><td>1</td><td>2</td><td colspan="2">2</td><td>1</td><td>4</td><td colspan="2">4</td><td>1</td></tr><tr><td>Counting copy cycles</td><td colspan="2">1</td><td colspan="2">1</td><td colspan="2">2</td><td colspan="2">2</td><td colspan="4">2</td><td>2</td><td>4</td><td colspan="2">4</td><td>1</td></tr></table> <div>0: No count   1: 1 count   2: 2 counts   4: 4 counts</div>	Copying		1-Sided						2-Sided						Manual Bypass	Size	Sizes other than those set	Set sizes						Sizes other than those set	Set sizes						Total	Mode	Mode						Mode	Mode						0	1	2	0	1	2	0	1	2	0	1	2	Total (mechanical, electronic)		1		1		2		2		2		4		4		1	Size (electronic)		0		1		1		2		0		2		2		0	0	2-Sided Total (electronic)		0		0						1	1	2		1	1	4		0	2-Sided Size (electronic)		0		0						0				1	1	4		0	Plug-In (mechanical)	Counting copies	1		1		2		2		1	2	2		1	4	4		1	Counting copy cycles	1		1		2		2		2				2	4	4		1
Copying		1-Sided						2-Sided						Manual Bypass																																																																																																																																																										
Size	Sizes other than those set	Set sizes						Sizes other than those set	Set sizes																																																																																																																																																															
Total	Mode	Mode						Mode	Mode																																																																																																																																																															
	0	1	2	0	1	2	0	1	2	0	1	2																																																																																																																																																												
Total (mechanical, electronic)		1		1		2		2		2		4		4		1																																																																																																																																																								
Size (electronic)		0		1		1		2		0		2		2		0	0																																																																																																																																																							
2-Sided Total (electronic)		0		0						1	1	2		1	1	4		0																																																																																																																																																						
2-Sided Size (electronic)		0		0						0				1	1	4		0																																																																																																																																																						
Plug-In (mechanical)	Counting copies	1		1		2		2		1	2	2		1	4	4		1																																																																																																																																																						
	Counting copy cycles	1		1		2		2		2				2	4	4		1																																																																																																																																																						
C-4	<div>&lt;Maintenance Call Reminder ON/OFF&gt;</div> <div>Select whether to enable or disable the maintenance call reminder.</div> <table><tr><th>Data</th><td><div>0</div></td><td>1</td></tr><tr><th>Description</th><td>The maintenance call reminder is not given.</td><td>The maintenance call reminder is given.</td></tr></table>	Data	<div>0</div>	1	Description	The maintenance call reminder is not given.	The maintenance call reminder is given.																																																																																																																																																																	
Data	<div>0</div>	1																																																																																																																																																																						
Description	The maintenance call reminder is not given.	The maintenance call reminder is given.																																																																																																																																																																						
C-5	<div>&lt;PM Counter&gt;</div> <div>Select either PM Counter or Copy Kit Counter.</div> <table><tr><th>Data</th><th>Description</th></tr><tr><td><div>0</div></td><td>PM Counter</td></tr><tr><td>1</td><td>Copy Kit Counter: Copying not inhibited after the counter has counted down to zero.</td></tr><tr><td>2</td><td>Copy Kit Counter: Copying inhibited after the counter has counted down to zero.</td></tr></table> <div>NOTE: If this function is set to "0" or "1" and, at the same time, only if C-4 is set to "1", the copier gives an indication to replace the IU (but permits the initiation of a new copy cycle) when the counter reaches the predetermined value. If this function is set to "2" or C-7 is "1", the copier gives an indication to replace the IU and inhibits the initiation of a new copy cycle when the counter reaches the predetermined value even with C-4 set to "0".</div>	Data	Description	<div>0</div>	PM Counter	1	Copy Kit Counter: Copying not inhibited after the counter has counted down to zero.	2	Copy Kit Counter: Copying inhibited after the counter has counted down to zero.																																																																																																																																																															
Data	Description																																																																																																																																																																							
<div>0</div>	PM Counter																																																																																																																																																																							
1	Copy Kit Counter: Copying not inhibited after the counter has counted down to zero.																																																																																																																																																																							
2	Copy Kit Counter: Copying inhibited after the counter has counted down to zero.																																																																																																																																																																							

Choice No.	Setting (The default is <b>Highlighted</b> .)						
C-6	<p>&lt;Plug-In Counter Copying Enable/Disable&gt; Select whether to enable or disable copying according to whether the Plug-In Counter is plugged in or not.</p> <table><tr><td>Data</td><td><b>0</b></td><td>1</td></tr><tr><td>Description</td><td>Permits copying even when the Plug-In Counter is not plugged in.</td><td>Inhibits copying when the Plug-In Counter is not plugged in.</td></tr></table> <p>NOTE: Be sure to set this function to "1" when the Plug-In Counter is installed.</p>	Data	<b>0</b>	1	Description	Permits copying even when the Plug-In Counter is not plugged in.	Inhibits copying when the Plug-In Counter is not plugged in.
Data	<b>0</b>	1					
Description	Permits copying even when the Plug-In Counter is not plugged in.	Inhibits copying when the Plug-In Counter is not plugged in.					
C-7	<p>&lt;IU 60K Stop&gt; Select whether or not to inhibit copying when IU Counter has counted 60K.</p> <table><tr><td>Data</td><td>0</td><td>1</td></tr><tr><td>Description</td><td>Permits copying.</td><td>Inhibits copying.</td></tr></table> <p>Default: 0 (inch areas) / 1 (metric areas)</p>	Data	0	1	Description	Permits copying.	Inhibits copying.
Data	0	1					
Description	Permits copying.	Inhibits copying.					
C-15	<p>&lt;Toner Empty Stop&gt; Select whether or not to inhibit copying when a toner-empty condition is detected.</p> <table><tr><td>Data</td><td><b>0</b></td><td>1</td></tr><tr><td>Description</td><td>Permits copying.</td><td>Inhibits copying.</td></tr></table> <p>NOTE: If "1" is set, the copier inhibits copying when it detects a T/C of 2.5% or lower.</p>	Data	<b>0</b>	1	Description	Permits copying.	Inhibits copying.
Data	<b>0</b>	1					
Description	Permits copying.	Inhibits copying.					
C-20	<p>&lt;Leading Edge Erase&gt; Varies the width of erase on the leading edge.</p> <table><tr><td>Data</td><td>0</td><td><b>1</b></td></tr><tr><td>Description</td><td>Smaller width</td><td>Greater width</td></tr></table> <p>NOTE: When the setting is changed, it results in the erase width being changed by about 3 mm.</p>	Data	0	<b>1</b>	Description	Smaller width	Greater width
Data	0	<b>1</b>					
Description	Smaller width	Greater width					
C-21	<p>&lt;Trailing Edge Erase&gt; Varies the width of erase on the trailing edge.</p> <table><tr><td>Data</td><td>0</td><td><b>1</b></td></tr><tr><td>Description</td><td>Smaller width</td><td>Greater width</td></tr></table> <p>NOTE: When the setting is changed, it results in the erase width being changed by about 3 mm.</p>	Data	0	<b>1</b>	Description	Smaller width	Greater width
Data	0	<b>1</b>					
Description	Smaller width	Greater width					

[Service Mode ► Tech. Rep. Choice]

Choice No.	Setting (The default is <b>Highlighted</b> .)																				
C-23	<p>&lt;Loop Length Adjustment&gt; Adjust the length of the loop to be formed in paper before the Synchronizing Rollers.</p> <table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>47</td><td>Loop length about 4.9 mm</td><td>51</td><td>Loop length about 7.7 mm</td></tr><tr><td>48</td><td>Loop length about 5.6 mm</td><td>52</td><td>Loop length about 8.4 mm</td></tr><tr><td>49</td><td>Loop length about 6.3 mm</td><td>53</td><td>Loop length about 9.1 mm</td></tr><tr><td><b>50</b></td><td>Loop length about 7.0 mm</td><td></td><td></td></tr></table>	Data	Description	Data	Description	47	Loop length about 4.9 mm	51	Loop length about 7.7 mm	48	Loop length about 5.6 mm	52	Loop length about 8.4 mm	49	Loop length about 6.3 mm	53	Loop length about 9.1 mm	<b>50</b>	Loop length about 7.0 mm		
Data	Description	Data	Description																		
47	Loop length about 4.9 mm	51	Loop length about 7.7 mm																		
48	Loop length about 5.6 mm	52	Loop length about 8.4 mm																		
49	Loop length about 6.3 mm	53	Loop length about 9.1 mm																		
<b>50</b>	Loop length about 7.0 mm																				
C-31 to 34	<p>&lt;Original Stop Position Adjustment&gt; Adjust the position at which to stop the original in each of the following ADF modes. C-31 : 1-sided original stop position adjustment *C-32 : 2-sided original stop position adjustment *C-33 : 2-in-1 original stop position adjustment *C-34 : 2-in-1 original distance adjustment C-37 : S-ADF mode original stop position adjustment C-38 : ADF Registration Loop adjustment</p> <table><tr><th>Data</th><td>43 ..... <b>50</b> ..... 58</td></tr><tr><th>Adjustment Value</th><td>- 7 mm ..... ±0 mm ..... +8 mm</td></tr></table> <p>NOTE: The stop position is farther away from the Original Width Scale (or a greater distance between 2-in-1 originals) in the + direction.</p>	Data	43 ..... <b>50</b> ..... 58	Adjustment Value	- 7 mm ..... ±0 mm ..... +8 mm																
Data	43 ..... <b>50</b> ..... 58																				
Adjustment Value	- 7 mm ..... ±0 mm ..... +8 mm																				
C-40	<p>&lt;Orig. ► Copy Type&gt; Determine the orig. ► copy types that can be selected in the "Priority Orig. ► Copy Type" available from the User mode.</p> <table><tr><th>Data</th><td>0</td><td><b>1</b></td></tr><tr><th>Description</th><td>All orig. ► copy types can be selected.</td><td>Only the types involving 2-sided copy can be selected.</td></tr></table>	Data	0	<b>1</b>	Description	All orig. ► copy types can be selected.	Only the types involving 2-sided copy can be selected.														
Data	0	<b>1</b>																			
Description	All orig. ► copy types can be selected.	Only the types involving 2-sided copy can be selected.																			
C-90	<p>&lt;ATDC Detection Level&gt; Select the ATDC control level (T/C ratio).</p> <table><tr><th>Data</th><th>Description</th><th>Data</th><th>Description</th></tr><tr><td>48</td><td>T/C ratio 4.0 %</td><td>51</td><td>T/C ratio 5.5 %</td></tr><tr><td>49</td><td>T/C ratio 4.5 %</td><td>52</td><td>T/C ratio 6.0 %</td></tr><tr><td><b>50</b></td><td>T/C ratio 5.0 %</td><td>53</td><td>T/C ratio 6.5 %</td></tr></table>	Data	Description	Data	Description	48	T/C ratio 4.0 %	51	T/C ratio 5.5 %	49	T/C ratio 4.5 %	52	T/C ratio 6.0 %	<b>50</b>	T/C ratio 5.0 %	53	T/C ratio 6.5 %				
Data	Description	Data	Description																		
48	T/C ratio 4.0 %	51	T/C ratio 5.5 %																		
49	T/C ratio 4.5 %	52	T/C ratio 6.0 %																		
<b>50</b>	T/C ratio 5.0 %	53	T/C ratio 6.5 %																		



### 3. Altering Fixed Zoom Ratios

- This function allows the Tech. Rep. to change the fixed zoom ratios over the range between X0.500 and X2.000 according to the needs of the user.

#### <Setting Procedure>

1. Select the Altering Fixed Zoom Ratios function.
2. Select the particular fixed zoom ratio using the appropriate Zoom Ratio Select key and press the Clear key to clear it.

#### NOTE:

*If the zoom ratio is cleared mistakenly, press the Panel Reset key to undo the clearing operation.*

3. Enter the desired zoom ratio from the 10-Keys.
4. Press the Start key to validate the new zoom ratio.

#### NOTE:

*If the value entered is greater than X2.000, the copier sets X2.000, while if the value is smaller than X0.500, the copier sets X0.500.*

### 4. PM Counter and Ports/Options Counter

- This function shows the counts of the PM Counter (IU) and Ports/Options Counter. The particular port or option is indicated by the corresponding LED of the Misfeed Monitor. The count is shown across the "Zoom Ratio Indicator" and "Multi-Copy Display."

NOTE: The PM Counter is indicated by the IU Service Life Indicator LED.

Example) Count: 12345

Multi-Copy Display  
123

Zoom Ratio Indicator  
45

#### Counting System

- PM Counter: Count-down type (When the counter has counted down to zero, a – (minus) sign appears in the Zoom Ratio Indicator and the count is thereafter incremented.
- Ports/Options Counter: Count-up type

#### <Setting Procedure>

1. Select the PM Counter and Ports/Options Counter function.
2. Each press of the Paper Select key lights up a new LED representing the new counter in the following order.

Order	Description	Order	Description
1	PM Counter	6	Manual bypass
2	1st Drawer	7	Duplex take-up
3	2nd Drawer	8	Sorter
4	3rd Drawer (Paper Feed Cabinet)	9	Stapling
5	4th Drawer (Paper Feed Cabinet)	10	ADF

NOTE: PF-104, if the copier is so equipped, is indicated by the 3rd Drawer LED only.

<Setting a PM Counter Count>

1. Show the count of the PM Counter (IU Service Life Indicator) and clear it.
2. Enter the desired count from the 10-Keys.

**NOTE**

*Press the Stop key to undo the clearing command.*

3. Press the Start key to validate the new count setting.

<Clearing a Count>

- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

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## 5. Paper Size Counter

- This function shows the counts of different sizes of paper.

The paper size is indicated by the Paper Select LED. The count is shown across the "Zoom Ratio Indicator" and "Multi-Copy Display."

Example) Count: 12345

Multi-Copy Display 123
---------------------------

Zoom Ratio Indicator 45
----------------------------

<Setting Procedure>

1. Select the Paper Size Counter function.
2. Each press of the Paper Select key lights up a new LED representing the new counter in the following order.

[Metric areas]

Order	Description
1	A3
2	A4
3	A5
4	B4
5	FLS
6	Inch

[Inch areas]

Order	Description
1	Legal
2	Letter
3	11" x 17"
4	11" x 14"
5	Invoice
6	Metric

<Clearing a Count>

- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

## 6. Misfeed Counter

- This function shows the number of misfeeds that have occurred at different locations in the copier (count-up type counter). The Monitor Display tells the location of the misfeed by a lit LED. The count is shown on the Zoom Ratio Indicator and the misfeed code is given on the Multi-Copy Display.

Example) Misfeed location: Manual bypass  
Count: 123

Zoom Ratio Indicator  
123

Multi-Copy Display  
J

### <Setting Procedure>

1. Select the Misfeed Counter function.
2. Each press of the Paper Select key lights up a new LED representing the new counter in the following order.

Order	Description	Order	Description
1	Manual bypass J	10	Storage/transport J
2	1st Drawer J	11	Storage J
3	2nd Drawer J	12	Sorter J
4	3rd Drawer (Paper Feed Cabinet) J	13	ADF (take-up) JA
5	4th Drawer (Paper Feed Cabinet) J	14	ADF (transport) Jb
6	Duplex take-up/transport J	15	ADF (exit) Jc
7	Paper take-up/transport J	16	ADF (turnover) Jd
8	Separator J	17	ADF (single feed) JE
9	Exit J		

NOTE: PF-104, if the copier is so equipped, is indicated by the 3rd Drawer LED.

### <Clearing a Count>

- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

## 7. Malfunction Counter

- This function shows the number of malfunctions that have occurred at different locations in the copier (count-up type counter). The Zoom Ratio Indicator shows the malfunction code, while the Multi-Copy Display shows the count.

Example) ATDC Sensor malfunction (F30)  
Count: 12

Zoom Ratio Indicator  
F30

Multi-Copy Display  
12

### <Setting Procedure>

1. Select the Malfunction Counter function.
  2. Each press of the Paper Select key shows the count of a new counter in the following order.
- NOTE:** The count is given only if it is not "0." If all counts are "0," the message "All 0" is shown.

Order	Malfunction Code	Description
1	000	A Main Drive Motor malfunction
2	010	A PC Drive Motor malfunction
3	04C	A Cooling Fan Motor malfunction
4	070	A Toner Replenishing Motor malfunction
5	400	An Exposure Lamp malfunction
6	500	An abnormally low fusing temperature during warm-up
7	510	An abnormally low fusing temperature after completion of warm-up
8	520	An abnormally high fusing temperature
9	600	A Scanner drive system malfunction
10	610	A Lens drive system malfunction
11	620	A Mirror drive system malfunction
12	900	A 1st Drawer malfunction
13	950	A 2nd Drawer malfunction
14	990	A Paper Feed Cabinet Main Tray malfunction
15	998	A Paper Feed Cabinet Shift Tray malfunction
16	99E	A Paper Feed Cabinet Shift Gate malfunction
17	F02	An Original Size Detecting Unit malfunction
18	F10	An AE Sensor malfunction
19	F30	An ATDC Sensor malfunction
20	F79	A Paper Empty Sensor malfunction
21	FE1	An Original Size Detecting Sensor malfunction
22	b10	A Sorter Paper Clamp Unit moving malfunction
23	b30	A Sorter Paper Aligning Motor malfunction
24	b50	A Sorter Staple Unit malfunction
25	b60	A Sorter Bin moving mechanism malfunction
26	d00	A Duplex Unit Guide Plates malfunction
27	d20	A Duplex Unit entrance port switching failure
28	d50	A Duplex Drive Motor malfunction
29	E1	A starter charging failure
30	E2	An ATDC automatic adjustment/IU fuse blowing failure
31	Ar1	Copier watchdog
32	Ar2	ADF watchdog
33	Ar3	Sorter watchdog

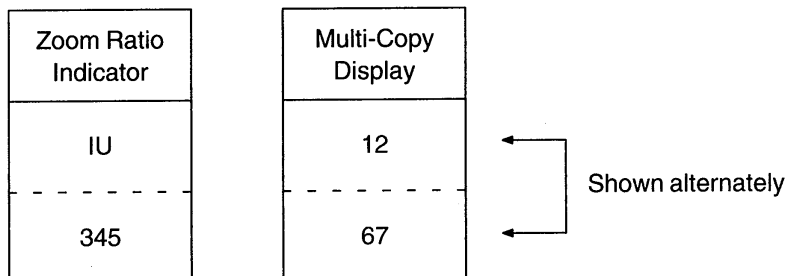
### <Clearing a Count>

- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

## 8. Parts/Supplies Life Counter

- This function shows the number of copy processes to which different parts or supplies have been subjected (count-up type). Each count is given as shown below.

Example) IU Counter  
Count: 1234567



### <Setting Procedure>

1. Select the Parts/Supplies Life Counter function.
2. Each press of the Paper Select key shows the count of a new counter in the following order.

Order	Zoom Ratio Indicator	Description
1	IU	IU Counter
2	Pc	PC Drum Counter
3	St	Developer Counter
4	Cb	Cleaning Blade Counter
5	Fu	Fusing Unit Counter

### <Clearing a Count>

- Show the count of the counter to be cleared and press the Clear key. If a count is mistakenly cleared, press the Stop key to undo the clearing command.

#### NOTE:

*The IU Counter cannot be cleared under this function. However, the counts of all counters except the Fusing Unit Counter under this counter function are cleared when the starter charging sequence is completed.*

## 9. Paper Size Input

- This function allows the Tech. Rep. to enter the size of the paper loaded in each drawer (except the 1st Drawer which is a Universal Tray).

### <Setting Procedure>

1. Select the Paper Size Input function.
2. Each press of the Paper Select key shows a new paper size in the following order.

Order	Zoom Ratio Indicator	Multi-Copy Display	Description
1	Current paper size	2F	2nd Drawer length
2		2C	2nd Drawer width
3		3F	3rd Drawer (Paper Feed Cabinet) length
4		3C	3rd Drawer (Paper Feed Cabinet) width
5		4F	4th Drawer (Paper Feed Cabinet) length
6		4C	4th Drawer (Paper Feed Cabinet) width

**NOTE:** For PF-104, use 3F and 3C for the size input.

3. Show the paper size to be set and press the Clear key to clear the current size.
4. From the 10-Keys, enter the new paper size.

## 10. Display

- This function is used to check the time it takes the copier to complete different functions and to make a control panel display test and sensor check.

### <Setting Procedure>

1. Select the Display function.
2. From the 10-Keys, enter the number (0, 1, 2, 6, or 7) corresponding to the item to be checked/set.

[Service Mode ► Display]

Display Function	Setting
d0	<p>&lt;Warm-up time&gt;</p> <p>The warm-up time is shown on the Zoom Ratio Indicator (in units of 100 ms).</p>
d1	<p>&lt;First copy time&gt;</p> <p>The first copy time is shown on the Zoom Ratio Indicator (in units of 100 ms).</p>
d2	<p>&lt;Multiple copy time&gt;</p> <p>The multiple copy time is shown on the Zoom Ratio Indicator (in units of 100 ms).</p>
d6	<p>&lt;Display test&gt;</p> <p>All LEDs on the control panel are turned ON and OFF (blinking) for checking operations.</p>
d7	<p>&lt;Sensor check&gt;</p> <p>When a misfeed or malfunction occurs, this function is used to make a sensor check to isolate the possible faulty spot.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>NOTE</b></p> <p>For details, see TROUBLESHOOTING.</p> </div>

## 6 ADJUST MODE

- The Adjust mode is used to adjust the optical system at the factory. Use this mode only when the RAM Board (PWB-R) has been replaced and memory clear performed. Whenever PWB-R has been replaced or memory clear performed, be sure to input the values indicated on the Adjust Mode Label on the inside of the Front Door.

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### 6-1. Functions Available in the Adjust Mode

Function Code	Name
A0	Lens focal length correction
A1	Lens full size position correction
A2	Mirror full size position correction
A3	Feeding-direction zoom ratio correction
A4	Full size registration adjustment

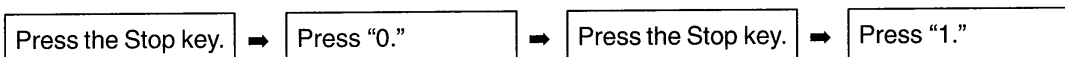
Function Code	Name
A5	Reduction registration adjustment
A6	Book-B scan registration adjustment
A11	Enlargement registration adjustment
A12	Leading edge erase width adjustment
A13	Trailing edge erase width adjustment

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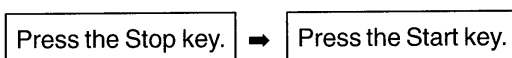
### 6-2. Entering the Adjust Mode

#### <Procedure>

1. Perform the following steps to set the copier into the Service mode.



2. Perform the following steps to set the copier into the Adjust mode.



3. From the 10-Keys, press the number corresponding to the adjust mode function to be used.  
(The function code appears on the zoom ratio indicator.)
4. Press the Start key. Then, the adjustment data appears on the Multi-Copy Display.
5. Using the Clear key, clear the current adjustment data setting and enter the desired data from the 10-Keys.
6. Press the Start key to validate the new data.

#### NOTE:

*If the setting is illegal, it is not validated and is shown blinking.*

#### <Test Copy>

- A test copy can be made by entering "A" of the Adjust Mode No., holding down the Stop key and pressing the Start key.

#### <Leaving the Adjust Mode>

- Press the Panel Reset key twice to go back to the Basic screen.

## 6-3. Settings in the Adjust Mode

[Service Mode ► Adjust Mode]

Adjust Mode	Setting												
A0 Lens focal length correction	<p>Corrects variations in the Lens focal length (according to the grouping of the Lenses).</p> <table><tr><td>Data</td><td>49</td><td>50</td><td>51</td></tr><tr><td>Description</td><td>Short focal length (−)</td><td>Standard (0)</td><td>Long focal length (+)</td></tr></table>	Data	49	50	51	Description	Short focal length (−)	Standard (0)	Long focal length (+)				
Data	49	50	51										
Description	Short focal length (−)	Standard (0)	Long focal length (+)										
A1 Lens full size position correction	<p>Corrects the zoom ratio in the crosswise direction by varying the Lens full size position.</p> <table><tr><td>Data</td><td>42</td><td>.....</td><td>50</td><td>.....</td><td>57</td></tr><tr><td>Description</td><td>+26 steps (Reduction direction)</td><td>.....</td><td>+58 steps</td><td>.....</td><td>+86 steps (Enlargement direction)</td></tr></table>	Data	42	.....	50	.....	57	Description	+26 steps (Reduction direction)	.....	+58 steps	.....	+86 steps (Enlargement direction)
Data	42	.....	50	.....	57								
Description	+26 steps (Reduction direction)	.....	+58 steps	.....	+86 steps (Enlargement direction)								
A2 Mirror full size position correction	<p>Corrects the optical path length of the Mirror for the Lens focal length.</p> <table><tr><td>Data</td><td>42</td><td>.....</td><td>50</td><td>.....</td><td>57</td></tr><tr><td>Description</td><td>+46 steps (Reduction direction)</td><td>.....</td><td>+110 steps</td><td>.....</td><td>+166 steps (Enlargement direction)</td></tr></table>	Data	42	.....	50	.....	57	Description	+46 steps (Reduction direction)	.....	+110 steps	.....	+166 steps (Enlargement direction)
Data	42	.....	50	.....	57								
Description	+46 steps (Reduction direction)	.....	+110 steps	.....	+166 steps (Enlargement direction)								
A3 Feeding-direction zoom ratio correction	<p>Correct the zoom ratio in the feeding direction by varying the scan speed.</p> <table><tr><td>Data</td><td>42</td><td>.....</td><td>50</td><td>.....</td><td>58</td></tr><tr><td>Description</td><td>−3.2% (Reduction direction)</td><td>.....</td><td>±0%</td><td>.....</td><td>+3.2% (Enlargement direction)</td></tr></table>	Data	42	.....	50	.....	58	Description	−3.2% (Reduction direction)	.....	±0%	.....	+3.2% (Enlargement direction)
Data	42	.....	50	.....	58								
Description	−3.2% (Reduction direction)	.....	±0%	.....	+3.2% (Enlargement direction)								
A4 Full size registration adjustment	<p>Corrects registration between the leading edge of the original and that of the image in the full size mode by varying the Synchronizing Roller start timing.</p> <table><tr><td>Data</td><td>30</td><td>.....</td><td>50</td><td>.....</td><td>70</td></tr><tr><td>Description</td><td>−5.6 mm (Smaller deviation)</td><td>.....</td><td>±0 mm</td><td>.....</td><td>+5.6 mm (Greater deviation)</td></tr></table>	Data	30	.....	50	.....	70	Description	−5.6 mm (Smaller deviation)	.....	±0 mm	.....	+5.6 mm (Greater deviation)
Data	30	.....	50	.....	70								
Description	−5.6 mm (Smaller deviation)	.....	±0 mm	.....	+5.6 mm (Greater deviation)								



[Service Mode ► Adjust Mode]

Adjust Mode	Setting																		
A5 Reduction registration adjustment	<p>Corrects registration between the leading edge of the original and that of the image in a reduction mode by varying the Synchronizing Roller start timing.</p> <table><tr><td>Data</td><td>30</td><td>.....</td><td>50</td><td>.....</td><td>70</td></tr><tr><td>Description</td><td>- 5.6 mm</td><td>.....</td><td>± 0 mm</td><td>.....</td><td>+5.6 mm</td></tr><tr><td></td><td>(Smaller deviation)</td><td></td><td></td><td></td><td>(Greater deviation)</td></tr></table>	Data	30	.....	50	.....	70	Description	- 5.6 mm	.....	± 0 mm	.....	+5.6 mm		(Smaller deviation)				(Greater deviation)
Data	30	.....	50	.....	70														
Description	- 5.6 mm	.....	± 0 mm	.....	+5.6 mm														
	(Smaller deviation)				(Greater deviation)														
A6 Book-B scan registration adjustment	<p>Corrects the registration between the leading edge of the original and that of the image in Book-B scan by varying the Synchronizing Roller start timing.</p> <table><tr><td>Data</td><td>30</td><td>.....</td><td>50</td><td>.....</td><td>70</td></tr><tr><td>Description</td><td>- 5.6 mm</td><td>.....</td><td>± 0 mm</td><td>.....</td><td>+5.6 mm</td></tr><tr><td></td><td>(Smaller deviation)</td><td></td><td></td><td></td><td>(Greater deviation)</td></tr></table>	Data	30	.....	50	.....	70	Description	- 5.6 mm	.....	± 0 mm	.....	+5.6 mm		(Smaller deviation)				(Greater deviation)
Data	30	.....	50	.....	70														
Description	- 5.6 mm	.....	± 0 mm	.....	+5.6 mm														
	(Smaller deviation)				(Greater deviation)														
A11 Enlargement registration adjustment	<p>Corrects registration between the leading edge of the original and that of the image in an enlargement mode by varying the Synchronizing Roller start timing.</p> <table><tr><td>Data</td><td>30</td><td>.....</td><td>50</td><td>.....</td><td>70</td></tr><tr><td>Description</td><td>- 5.6 mm</td><td>.....</td><td>± 0 mm</td><td>.....</td><td>+5.6 mm</td></tr><tr><td></td><td>(Smaller deviation)</td><td></td><td></td><td></td><td>(Greater deviation)</td></tr></table>	Data	30	.....	50	.....	70	Description	- 5.6 mm	.....	± 0 mm	.....	+5.6 mm		(Smaller deviation)				(Greater deviation)
Data	30	.....	50	.....	70														
Description	- 5.6 mm	.....	± 0 mm	.....	+5.6 mm														
	(Smaller deviation)				(Greater deviation)														
A12 Leading edge erase width adjustment	<p>Corrects the leading edge erase width by varying the Image Erase Lamp ON timing.</p> <table><tr><td>Data</td><td>42</td><td>.....</td><td>50</td><td>.....</td><td>58</td></tr><tr><td>Description</td><td>- 6 mm</td><td>.....</td><td>± 0 mm</td><td>.....</td><td>+6 mm</td></tr><tr><td></td><td>(Smaller width)</td><td></td><td></td><td></td><td>(Greater width)</td></tr></table>	Data	42	.....	50	.....	58	Description	- 6 mm	.....	± 0 mm	.....	+6 mm		(Smaller width)				(Greater width)
Data	42	.....	50	.....	58														
Description	- 6 mm	.....	± 0 mm	.....	+6 mm														
	(Smaller width)				(Greater width)														
A13 Trailing edge erase width adjustment	<p>Corrects the trailing edge erase width by varying the Image Erase Lamp ON timing.</p> <table><tr><td>Data</td><td>40</td><td>.....</td><td>50</td><td>.....</td><td>60</td></tr><tr><td>Description</td><td>- 7.2 mm</td><td>.....</td><td>± 0 mm</td><td>.....</td><td>+7.2 mm</td></tr><tr><td></td><td>(Smaller width)</td><td></td><td></td><td></td><td>(Greater width)</td></tr></table>	Data	40	.....	50	.....	60	Description	- 7.2 mm	.....	± 0 mm	.....	+7.2 mm		(Smaller width)				(Greater width)
Data	40	.....	50	.....	60														
Description	- 7.2 mm	.....	± 0 mm	.....	+7.2 mm														
	(Smaller width)				(Greater width)														

## 7

## FUNCTION SETTING REQUIREMENTS AT REPLACEMENT OF PARTS

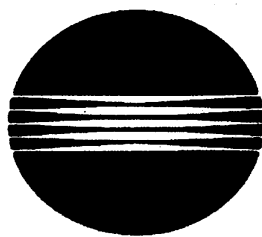
- If a part is replaced as part of troubleshooting and other service jobs, some parts require that a Test operation be run and data values reentered and/or cleared.

Replacement Part		RAM Board	IU	PC Drum	Developer *1	Cleaning Blade	Fusing Rollers	Exposure Lamp *2
Function								
Memory clear		<input type="radio"/>						
Initialize		<input type="radio"/>						
Job program		<input type="radio"/>						
User mode		<input type="radio"/>						
Service mode	Tech. Rep. Choice	<input type="radio"/>						
	Test F3	<input type="radio"/>						<input type="radio"/>
	Test F5	<input type="radio"/>		<input type="radio"/>				
	Test F8	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>			
	PM Counter		<input type="radio"/>					
	Clearing Parts/ Supplies Life Counter "Pc"			<input type="radio"/>				
	Clearing Parts/ Supplies Life Counter "St"							
	Clearing Parts/ Supplies Life Counter "Cb"					<input type="radio"/>		
	Clearing Parts/ Supplies Life Counter "Fu"						<input type="radio"/>	
Adjust mode		<input type="radio"/>						

\*1 : Including the replacement of the ATDC Sensor

☐ : Required

\*2 : Including the cleaning of Lamp Regulator and optical system.



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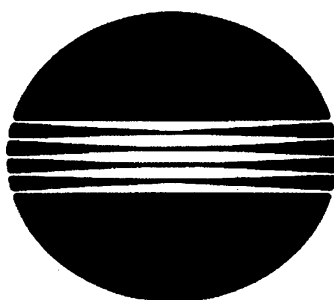
**1150-7997-11 97083600**  
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# EP2051

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# TROUBLESHOOTING



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# CONTENTS

\*Only when options are used

## 1 INTRODUCTION

1-1. General Precautions .....	T-1
1-2. How to Use This Book .....	T-1
1-3. Reading the Text .....	T-1

## 2 I/O PORT CHECK

2-1. Method for Checking the Control Parts with Loads .....	T-2
2-2. I/O Port Check List .....	T-4

## 3 PAPER TRANSPORT FAILURE

1. Paper Misfeed .....	T-12
1-1. Misfeed Detected When Copier is Turned ON .....	T-14
1-2. Copier Take-Up Misfeed .....	T-15
*1-3. PF-204 Take-Up Misfeed .....	T-18
1-4. PF-104 Take-Up Misfeed .....	T-21
1-5. Bypass Port Misfeed (*Multi Bypass Table) .....	T-24
1-6. Transport/Separator Misfeed .....	T-26
1-7. Fusing/Exit Misfeed .....	T-29
*1-8. Duplex Unit Vertical Transport Misfeed .....	T-31
*1-9. Duplex Unit Take-Up Misfeed .....	T-34
2. Wrinkles in Paper .....	T-37
3. Double Feed .....	T-37
4. Skewed Feed .....	T-38

## 4 MALFUNCTIONS

1. Self-Diagnostic Function .....	T-39
1-1. C0000: Main Drive Motor's failure to turn .....	T-45
C0001: Main Drive Motor turning at abnormal timing	
1-2. C0010: PC Drive Motor's failure to turn .....	T-46
C0011: PC Drive Motor turning at abnormal timing	
1-3. C004C: Cooling Fan Motor's failure to turn .....	T-47
1-4. C0070: Toner Replenishing Motor's failure to turn .....	T-48
C0071: Toner Replenishing Motor turning at abnormal timing	
1-5. C0400: Exposure Lamp's failure to turn ON .....	T-49
C0410: Exposure Lamp turning ON at abnormal timing	

1-6.	C0500: Warming-up failure	T-51
	C0510: Abnormally low fusing temperature	
	C0520: Abnormally high fusing temperature	
1-7.	C0600: Scanner Motor malfunction	T-53
	C0610: Lens Motor malfunction	
	C0620: Mirror Motor malfunction	
*1-8.	C0900: 3rd Drawer Lift-Up Sensor malfunction	T-55
	C0904: 3rd Drawer Lift-Up Motor malfunction	
	C0950: 4th Drawer Lift-Up Sensor malfunction	
	C0954: 4th Drawer Lift-Up Motor malfunction	
*1-9.	C0990: Main Tray Upward Motion Failure	T-57
	C0991: Main Tray Downward Motion Failure	
	C0992: Main Tray Downward Motion Failure	
	C0993: Main Tray Upward Motion Failure	
	C0994: Main Tray Elevator Motor M26's Failure to Turn	
*1-10.	C0998: Shift Transfer Failure	T-59
	C0999: Shift Return Failure	
	C099A: Shift Return Failure	
	C099b: Shift Transfer Failure	
	C099C: Shift Motor M27's Failure to Turn	
*1-11.	C099E: Shift Gate position detecting failure	T-61
	C099F: Shift Gate position detecting failure	
	C0996: 3rd Drawer Lock Release Failure	
	C0F79: Paper Empty Sensor Failure	
1-12.	C0d00: Duplex Unit Front/Rear Edge Guide Plates home position detection failure	T-63
	C0d20: Duplex Unit Trailing Gate Unit home position detection failure	
	C0d50: Duplex Unit Drive Motor's failure to turn	
	C0d51: Duplex Unit Drive Motor turning at abnormal timing	
1-13.	C0F10: Faulty AE Sensor level	T-65
	C0F30: ATDC Sensor malfunction	
1-14.	C0F02: Original size detection error (Defective CPU)	T-66
	C0FE1 To C0FFF: Original Size Detecting Sensor failure	
2.	Power is not Turned ON	T-67
3.	E1, E2	T-69

# 1 INTRODUCTION

1139SBT0101A

## 1-1. General Precautions

1. When servicing the copier with its covers removed, use utmost care to prevent your hands, clothing, and tools from being caught in revolving parts including the chains and gears.
2. Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
3. Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
4. When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the green wire (GND).
5. When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
6. Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.

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## 1-2. How to Use This Book

1. If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedure applicable within the defective unit.
2. All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
3. For the removal procedures of covers and parts, see DIS/REASSEMBLY, ADJUSTMENT.
4. The troubleshooting procedures are given in the order of greater frequency of trouble or order of operation.
5. The procedures preclude possible malfunctions due to noise and other external causes.

1139SBT0103A

## 1-3. Reading the Text

1. The paper transport failure troubleshooting procedures are given according to the symptom. First identify the location where the paper is present and start the procedure for that particular location. For malfunction troubleshooting, start with step 1 and onward.
2. Make checks in numerical order of steps and, if an item is checked okay, go to the next step.

Pattern 1

Step	Check Item	Result	Action
1	Is--?	YES ↑	Do this.
2	Go to step 2 if it checks okay.		

Pattern 2

Step	Check Item	Result	Action
1	Is--?	YES	Do this.
		NO	Check that. ↑
2	Go to step 2 if it checks okay.		

## 2 I/O PORT CHECK

### 2-1. Controlled Parts Check Procedure

To allow the Tech. Rep. to easily and safely determine whether a particular controlled part is fully operational, this copier provides the following provision: checking of the data of the I/O port on the board IC with the copier in the standby state (including a misfeed, malfunction, and closure failure condition) allows the Tech. Rep. to determine whether a signal is properly input to, and output from, a controlled part.

#### <Procedure>

- 1) When a paper misfeed or malfunction occurs, identify the I/O port of the possibly defective controlled part by reviewing the text or I/O port check list.
- 2) Select the I/O Check function of the Service mode and show on the Touch Panel the status of the I/O port identified in step 1.
- 3) Check the input or output port data to determine whether the controlled part is operational and signals are properly input and output.



### <Controlled Part Check Procedure by Changing Input Port Data>

Example: When a paper misfeed occurs in the paper take-up section of the copier, 1st Drawer Paper Take-Up Sensor PC55 is considered to be responsible for it.

#### <Procedure>

- 1) Remove the sheet of paper misfed.
- 2) From the I/O port check list, it is found that the H/L input signal to PC55 is supplied from PWB-A (IC4A) APA1.
- 3) Select the I/O Check function from the Service mode menu and, using the Paper Select key, show the status of PWB-A (IC4A) APA1 on the control panel.
- 4) Check that the second LED from the right of the Exposure Level Display lights up (sensor being unblocked).

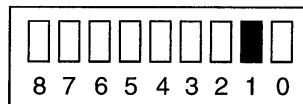
· Zoom Ratio Indicator

APA

· Multi-Copy Display

4A

· Exposure Level Display



- 5) Move the PC55 actuator to block the sensor.
- 6) Check at this time that the LED goes out.  
ON: PC55 is faulty. OFF: PC55 is operational.

## 2-2. Port Check List

### Copier

※ 1st Drawer paper take-up LED on the Monitor Display lights up.

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
M1	PC Drive Motor	P47	P4	1A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ12A-8
M1	PC Drive Motor lock signal	P67	P6	↑	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When locked	When turned	PJ12A-7
M2	Main Drive Motor	P43	P4	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ12A-10
M2	Main Drive Motor lock signal	P66	P6	↑	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When locked	When turned	PJ12A-9
M3	Optical Section Cooling Fan Motor	P43	P4	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ32A-2
M4	Suction Fan Motor	P43	P4	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ6A-8
M5	Scanner Motor	P61	P6	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ16A-3
		P62	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	ON	OFF	
M6	Lens Motor	P61	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ16A-1
		P62	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	
M7	Mirror Motor	P61	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	ON	OFF	PJ16A-2
		P62	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	
M8	Toner Replenishing Motor	BPA5	BPA	4A	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ5A-5
M9	Cooling Fan Motor	OUTO	OUT	5A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ6A-9
M9	Cooling Fan Motor lock signal	APC2	APC	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When locked	When turned	PJ6A-11
SL1	Separator Solenoid	BPA6	BPA	4A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ14A-2
SL2	1st. Drawer Paper Take-Up Solenoid	BPA4	BPA	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ7A-9
SL3	2nd. Drawer Paper Take-Up Solenoid	BPA3	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ8A-2

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
SL51	Manual Feed Paper Take-Up Solenoid (down)	PB0	PB	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	OFF	ON	PJ12A-8
SL51	Manual Feed Paper Take-Up Solenoid (up)	PB1	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ12A-10
SL61	Turnover/Exit Switching Solenoid	PB3	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ32A-2
CL1	Synchronizing Roller Clutch	BPA0	BPA	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	OFF	ON	PJ6A-8
CL2	Paper Transport Clutch	BPA1	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	OFF	ON	PJ16A-3
CL51	Manual Feed Paper Take-Up Clutch	PB2	PB	5A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	OFF	
PC10	Left Door Detecting Sensor	PA3	PA1	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ13A-4
PC12	Duplex Vertical Transport Sensor	PA2	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ21A-5
PC30	2nd Paper Exit Sensor	APB7	APB	4A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ13A-3
PC31	Manual Feed Paper Empty Sensor	APC3	APC	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	
PC51	Transport Roller Sensor	APC7	↑	↑	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ18A-6
PC53	Paper Exit Sensor	APC5	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ21A-2

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
PC54	Paper Leading Edge Detecting Sensor	APC6	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ11A-6
PC55	1st Drawer Paper Take-Up Sensor	APA1	APA	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ7A-2
PC56	2nd Drawer Paper Take-Up Sensor	PA5	PA1	5A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ6A-7
PC57	Right Door Detecting Sensor	APA0	APA	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	When unblocked	When blocked	PJ16A-3
PC69	2nd Drawer Set Sensor	PA7	PA1	5A	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ10A-2
PC81	Scanner Reference Position Sensor	APB0	APB	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ22A-1
PC86	Mirror Reference Position sensor	APB2	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ20A-2
PC90	Lens Reference Position Sensor	APB1	APB	4A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ20A-5
PC101	1st Drawer Paper Empty Sensor	APA2	APA	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ7A-6
PC102	2nd Drawer Paper Empty Sensor	PA6	PA	5A	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ6A-4

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics	CN/PJ No.
PC111	Original Cover Detecting Sensor	PA2	PA	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	ON When unblocked	OFF When blocked
PC112	Toner Hopper Home Position Sensor	APB6	APB	4A	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked
PC113	Original Size Detecting Sensor FD2	PA6	PA0	5A	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked (blinking)	When blocked
PC114	Original Size Detecting Sensor CD1	PA5	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked (blinking)	When blocked
PC115	Original Size Detecting Sensor FD3	PA7	↑	↑	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked (blinking)	When blocked
PC116	Original Size Detecting Sensor CD2	PA4	PA0	5A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked (blinking)	When blocked

### PF-204, PF-104

\* 3rd Drawer paper take-up LED on the Monitor Display lights up.

Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics	CN/PJ No.
M24	3rd Drawer Lift-Up Motor	PA0	PA	1A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	ON OFF	OFF ON
M25	PC Drive Motor lock signal	P67	P6	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON
M26	Elevator Motor (downward)	PA2	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	stop/upward	downward
M26	Elevator Motor (upward)	PA3	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	stop/ downward	upward





Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OFF	
PC27	3rd Drawer Lifting Motor Pulse Detection Sensor	PC1	PC	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	When unblocked	When blocked	PJ8A-5B
PC28	4th Drawer Lifting Motor Pulse Detection Sensor	PD1	PD	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	When unblocked	When blocked	PJ9A-9
PC29	4th Drawer Paper Take-Up Detection Sensor	PB0	PB	2A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ4A-2
PC34	Shift Tray Paper Empty Sensor	PC1	PC	1A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	When unblocked	When blocked	PJ3A-7
PC35	Lower Position Sensor	PC3	PB	2A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ3A-6
PC69	3rd Drawer Limit Sensor	PO1	PO	2A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	When unblocked	When blocked	PJ6A-3
PC70	4th Drawer Limit Sensor	PC0	PC	2A 2A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	When unblocked	When blocked	PJ9A-3
UN21	3rd Drawer Paper Descent Key	PC2	↑	2A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	OFF	ON	PJ3A-2
PWB-E	Main Tray Paper Empty Board	PF3	PF	1A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ9A-2



# AD-8

※ The Duplex Unit LED on the Monitor Display lights up.

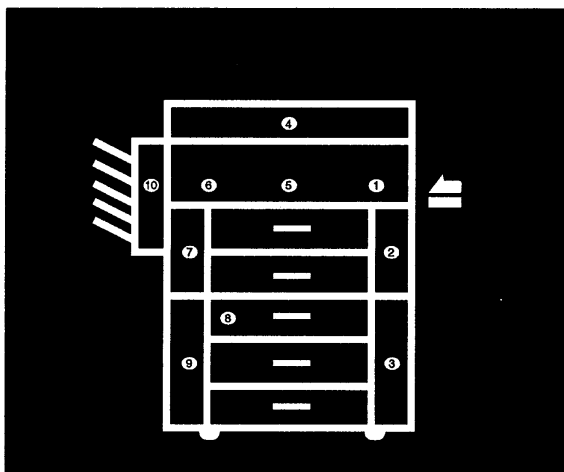
Symbol	Name	Port No.	Magnification Ratio Indicator	Multi-Copy Display	Manual Exposure Indicator	Operation Characteristics		CN/PJ No.
						ON	OF	
M31	Duplex Unit Drive Motor	PB3	PB	1A	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ6G-2
M31	Duplex Unit Drive Motor lock signal	PE1	PE	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When locked	When turned	PJ6G-1
CL31	Duplex Unit Paper Take-Up Clutch	PA3	PA	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ2G-7
SL31	Duplex Unit Gate Switching Solenoid	PH1	PH	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ3G-5
SL32	Duplex Unit Rear Finger Solenoid	PH0	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	OFF	ON	PJ3G-7
PC8	Duplex Gate Home Position Sensor	PE0	PE	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ7G-2
PC9	Front/Rear Edge Guide Plate Home Position Sensor	PC3	PC	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ7G-5
PC14	Duplex Unit Trailing Sensor	PC1	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ3G-2
PC15	Duplex Unit Paper Empty Sensor	PC2	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ2G-4
PC16	Duplex Unit Paper Take-Up Sensor	PC0	↑	↑	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	When unblocked	When blocked	PJ2G-9

### 3 PAPER TRANSPORT FAILURE

1139SBT0201A

#### 1. Paper Misfeed

When a paper misfeed occurs in the copier, the corresponding Misfeed Location Monitor LED on the control panel blinks to let the user know where the misfeed has occurred. If an LED lights up steadily, it indicates that there might be a sheet of paper present at that particular location in the copier. If a paper misfeed occurs very frequently, carry out the necessary troubleshooting procedures according to the location of the misfeed.



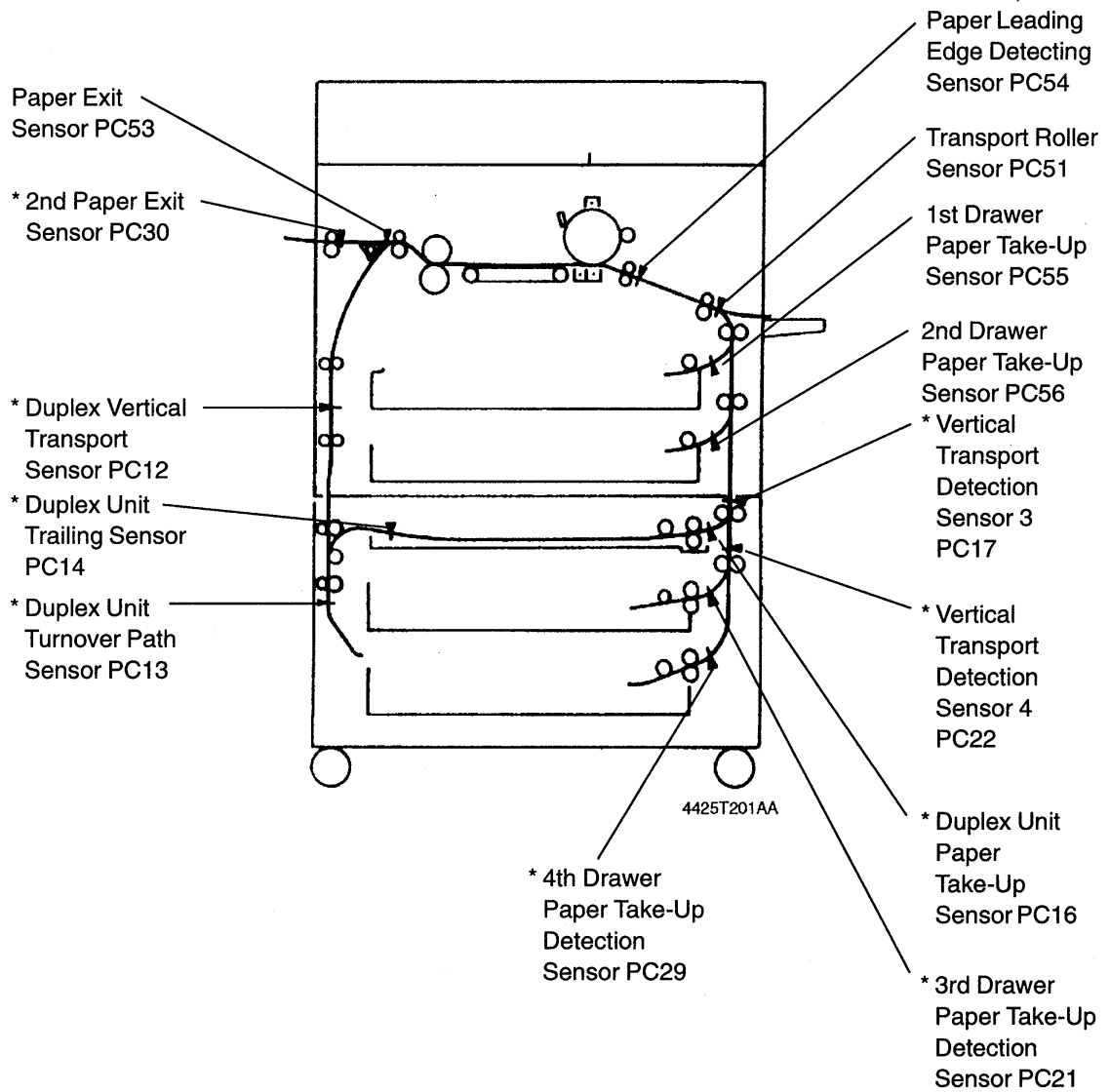
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<b>Blinking Light</b>	There is a misfeed at that location.
<b>Steady Light</b>	There might be a sheet of paper stopped at that location.

\*When option is installed

<b>Blinking LED</b>	<b>Misfeed Location</b>
②	Copier take-up and vertical transport
*③	Paper Feed Cabinet take-up and vertical transport
①	Bypass port
⑤	Transport/Separator
*⑥	Fusing/Exit
*⑦ ⑨	Duplex Unit vertical transport
*⑧	Duplex Unit storage
*③	Duplex Unit take-up
*⑩	Sorter/Staple Sorter
④	Automatic/Duplexing Document Feeder

The paper misfeed, including a sheet of paper that is likely to be present, in the copier as well as in the paper feeder options is detected by the following sensors.



## 1-1. Misfeed Detection Types and Detection Timings

- The following table lists the types of misfeed detection classified by the misfeed locations and their corresponding detection timings.

**Note:** For the misfeed detection types and detection timings in the options, see the Service Manual for the options.

### <Paper Take-Up Misfeed>

Type	Detection Timing
Paper take-up failure detection	1st Paper Size Detecting Switch PC55 is not blocked (L) even after the lapse of approx. 2.2 seconds after 1st Drawer Paper Take-Up Solenoid SL2 has been energized.
	2nd Paper Size Detecting Switch PC56 is not blocked (L) even after the lapse of approx. 2.2 seconds after 2nd Drawer Paper Take-Up Solenoid SL3 has been energized.
Paper take-up trailing edge detection	PC55 is not unblocked (H) even after the lapse of approx. T seconds (which varies for paper sizes) after it has been blocked (L).
	PC56 is not unblocked (H) even after the lapse of approx. T seconds (which varies for paper sizes) after it has been blocked (L).
Leading edge detection by Transport Roller Sensor PC51	PC51 is not blocked (L) even after the lapse of approx. 1.7 seconds after PC55 has been blocked (L).
	PC51 is not blocked (L) even after the lapse of approx. 2.5 seconds after PC56 has been blocked (L).

### <Multi Bypass Misfeed>

Type	Detection Timing
Paper take-up failure detection	PC51 is not blocked (L) even after the lapse of approx. 2.5 seconds after Paper Transport Clutch CL2 has been energized.

### <Transport/Separator Misfeed>

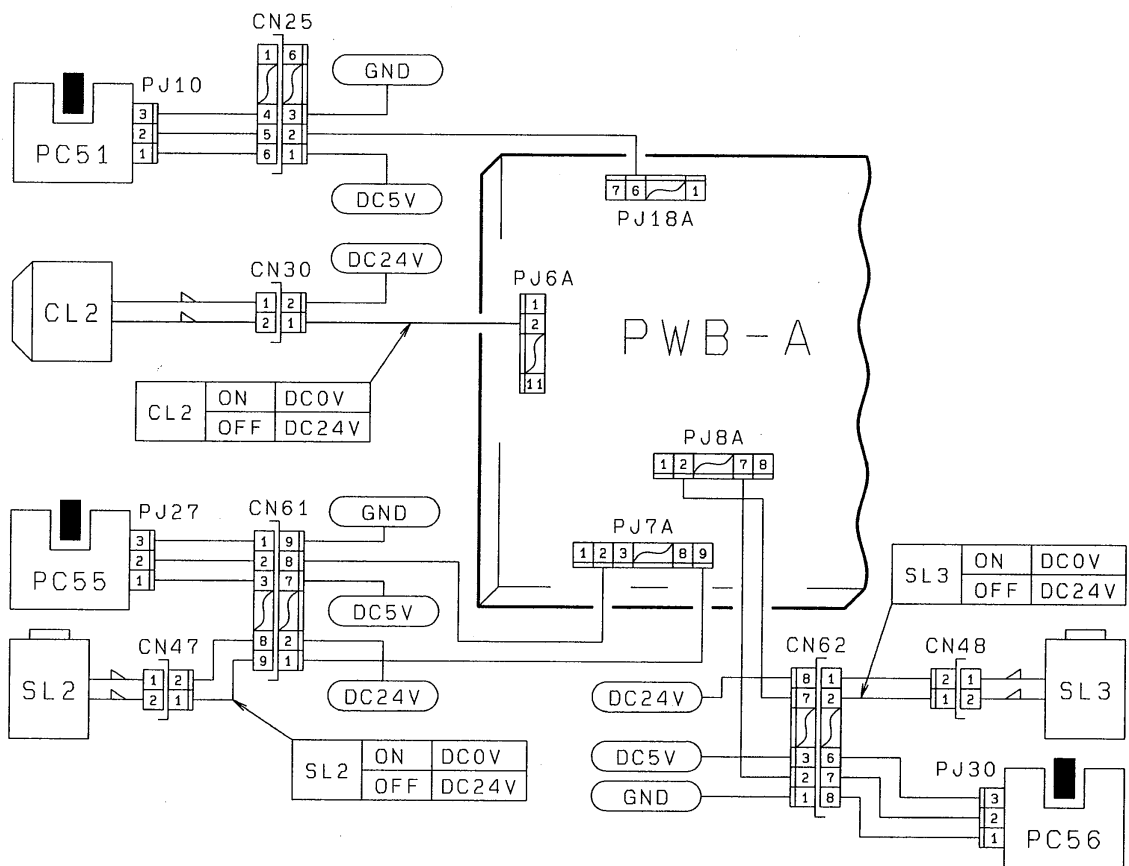
Type	Detection Timing
Leading edge detection by Paper Leading Edge Detecting Sensor PC54	PC54 is not blocked (L) even after the lapse of approx. 1.4 seconds after PC51 has been blocked (L).
Trailing edge detection by Paper Leading Edge Detecting Sensor PC54	PC54 is not unblocked (H) even after the lapse of approx. 1.4 seconds after PC51 has been unblocked (H).

### <Fusing/Exit Misfeed>

Type	Detection Timing
Leading edge detection by Paper Exit Sensor PC53	PC53 is not blocked (L) even after the lapse of approx. 3.8 seconds after the TRON signal has been input.
Trailing edge detection by Paper Exit Sensor PC53	PC53 is not unblocked (H) even after the lapse of approx. 3 seconds after Paper Leading Edge Detecting Sensor PC54 has been unblocked (H).

**1-2. Copier Take-Up Misfeed**

Symbol	Name
PC51	Transport Roller Sensor
PC55	1st Drawer Paper Take-Up Sensor
PC56	2nd Drawer Paper Take-Up Sensor
SL2	1st Drawer Paper Take-Up Solenoid
SL3	2nd Drawer Paper Take-Up Solenoid
CL2	Paper Transport Clutch
PWB-A	Main Control Board



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◆ Copier Take-Up Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
<ul style="list-style-type: none"> <li>Paper is not taken up at all.</li> <li>Paper is stationary before the Paper Take-Up Sensor.</li> </ul>	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Are the Separator Fingers on both sides of the Drawer in position?	NO	Instruct the user to load the paper so that it rests under the Fingers.
	4	Are the Separator Fingers deformed?	YES	Replace the Fingers.
	5	Is the Trailing Edge Stop or Edge Guide in good position?	NO	Instruct the user in how to position the Edge Stop or Guide.
	6	Are the Paper Lifting Springs positioned correctly?	NO	Change the position of the Springs or add one as necessary.
	7	Are the Paper Take-Up Rolls deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Rolls.
	8	Is a signal being output from PWB-A to the Paper Take-Up Solenoid?  * Does the voltage across PJ7A-9 (1st Drawer) or PJ8A-2 (2nd Drawer) on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Adjust the Solenoid stroke. Check the Solenoid.
			NO	Replace PWB-A.
	9	Is the Clutch Spring deformed or worn?	YES	Replace the Clutch Spring.

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Symptom	Step	Check Item	Result	Action
<ul style="list-style-type: none"> <li>Paper is stationary before the Vertical Transport Roller.</li> <li>Paper is stationary at the Vertical Transport Roller.</li> </ul>	10	Check 1st/2nd Drawer Paper Take-Up Sensor (PC55/Pc56). See p.T-3. PC55: PWB-A (IC4A) APA1 PC56: PWB-A (IC5A) PA5	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check the Paper Take-Up Sensor.
	11	Are the Vertical Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers.
	12	Are the Paper Take-Up Guide Plate and Vertical Transport Guide Plate dirty or deformed?	YES	Clean, correct, or replace the Guide Plate.
	13	Is a signal being output from PWB-A to the Clutch?  * Does the voltage across PJ6A-2 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
<ul style="list-style-type: none"> <li>Paper is stationary near the Transport Roller.</li> </ul>	14	Check Transport Roller Sensor PC51. See p. T-3 (PWB-A (IC4A) APC7).	YES	Replace or check the PWB-A.
			NO	Check the Actuator for operation. Check PC51.
	15	Are the Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Transport Rollers.





◆ Paper Feed Cabinet Take-Up Misfeed Clearing Procedure

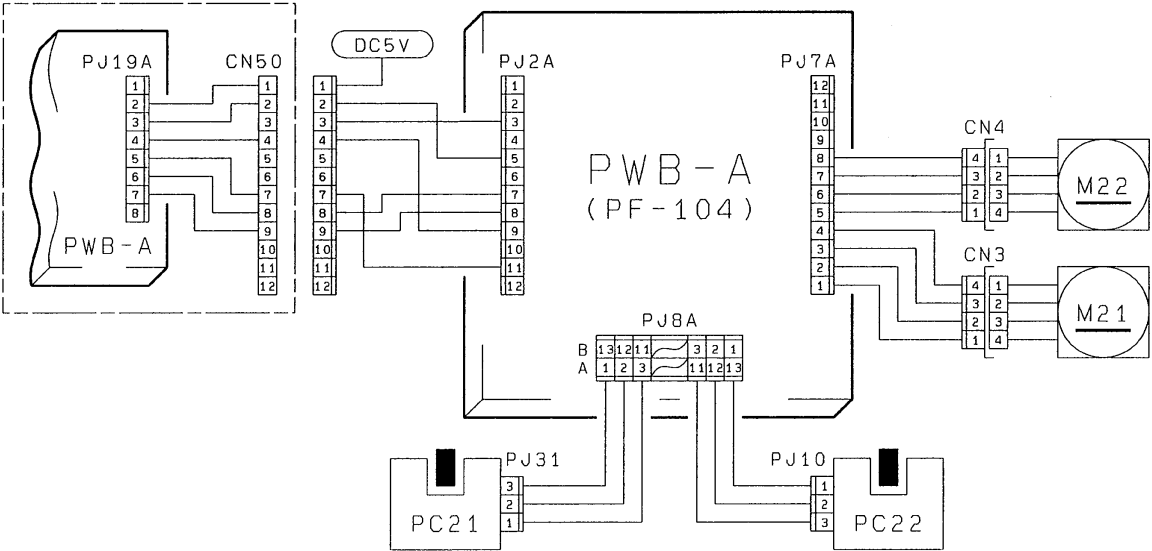
Symptom	Step	Check Item	Result	Action
<ul style="list-style-type: none"> <li>Paper is not taken up at all.</li> <li>Paper is stationary before the Paper Take-Up Detection Sensor.</li> </ul>	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Is the Paper Take-Up Motor turning when the Start Key is pressed?	YES	Check for possible overload.
			NO	Replace PWB-A or PWB-A (PF-204). Check the Motor.
<ul style="list-style-type: none"> <li>Paper is stationary before the Vertical Transport Rollers.</li> </ul>	4	Is the Paper Take-Up Roll or Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up or Separator Roll.
	5	Check 3rd/4th Drawer Paper Take-Up Sensor (PC21/PC29). See p. T-3. PC21: (PF-204) PWB-A IC1A PE3. PC29: (PF-204) PWB-A IC2A PB3.	YES	Replace PWB-A or PWB-A (PF-204).
			NO	Check the Actuator for operation. Check the Paper Take-Up Sensor.
	6	Is Vertical Transport Drive Motor M21 turning when the Start Key is pressed?	YES	Check for possible overload.
			NO	Replace PWB-A or PWB-A (PF-204). Check the Motor.
	7	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.

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Symptom	Step	Check Item	Result	Action
● Paper is stationary near Vertical Transport Detection Sensor 4 PC22.	8	Check Vertical Transport Detection Sensor 4 PC22. See p. T-3 (PF-204) PWB-A IC1A PC2.	YES	Replace PWB-A or PWB-A (PF-204).
			NO	Check the Actuator for operation and check the Sensor.
● Paper is stationary before the copier.	9	Check Vertical Transport Detection Sensor 4 PC22. See p. T-3 (PF-204) PWB-A IC1A PC2.	YES	Replace PWB-A or PWB-A (PF-204).
			NO	Check the Actuator for operation and check the Sensor.
	10	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.
			NO	Check the Paper Feed Cabinet for positive connection to the copier.

**1-4. PF-104 Take-Up Misfeed**

Symbol	Name
PC21	3rd Drawer Paper Take-Up Detection Sensor
PC22	Vertical Transport Detection Sensor 4
M21	Vertical Transport Drive Motor
M22	3rd Drawer Paper Take-Up Motor
PWB-A	Main Control Board
PWB-A	Master Board (PF-104)



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◆ Paper Feed Cabinet Take-Up Misfeed Clearing Procedure

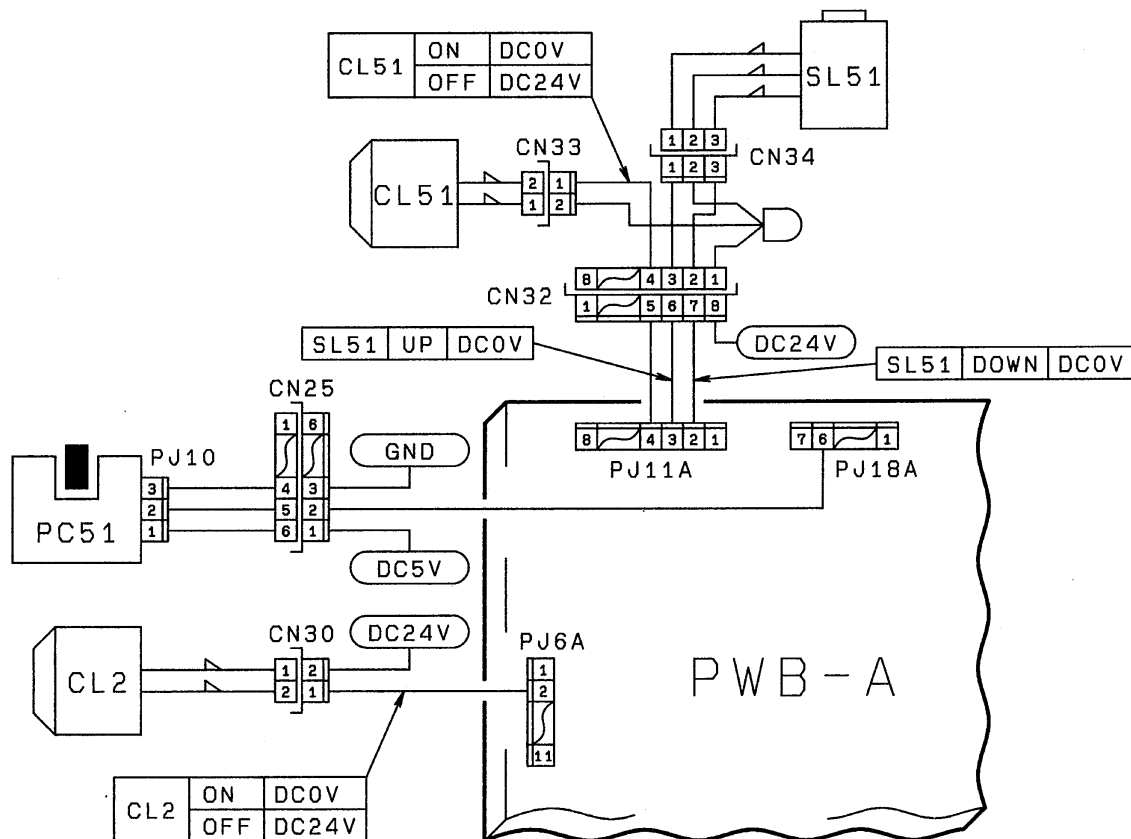
Symptom	Step	Check Item	Result	Action
<ul style="list-style-type: none"> <li>Paper is not taken up at all.</li> <li>Paper is stationary before the Paper Take-Up Detection Sensor.</li> </ul>	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	3	Is the Paper Take-Up Motor turning when the Start Key is pressed?	YES	Check for possible overload.
			NO	Replace PWB-A or PWB-A (PF-104). Check the Motor.
	4	Is the Paper Take-Up Roll or Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up or Separator Roll.
<ul style="list-style-type: none"> <li>Paper is stationary before the Vertical Transport Rollers.</li> </ul>	5	Check 3rd Drawer Paper Take-Up Sensor PC21. Seep. T-3. PC21: (PF-104) PWB-A IC1A PE3.	YES	Replace PWB-A or PWB-A (PF-104).
			NO	Check the Actuator for operation. Check the Paper Take-Up Sensor.
	6	Is Vertical Transport Drive Motor M21 turning when the Start Key is pressed?	YES	Check for possible overload.
			NO	Replace PWB-A or PWB-A (PF-104). Check the Motor.
	7	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.

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Symptom	Step	Check Item	Result	Action
● Paper is stationary near Vertical Transport Detection Sensor 4 PC22.	8	Check Vertical Transport Detection Sensor 4 PC22. See p. T-3 (PF-104) PWB-A IC1A PC2.	YES	Replace PWB-A or PWB-A (PF-104).
			NO	Check the Actuator for operation and check the Sensor.
● Paper is stationary before the copier.	9	Check Vertical Transport Detection Sensor 4 PC22. See p. T-3 (PF-104) PWB-A IC1A PC2.	YES	Replace PWB-A or PWB-A (PF-104).
			NO	Check the Actuator for operation and check the Sensor.
	10	Is the Vertical Transport Roller or Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.
			NO	Check the Paper Feed Cabinet for positive connection to the copier.

**1-5. Bypass Port Misfeed**

Symbol	Name
PC51	Transport Roller Sensor
SL51	Manual Feed Paper Take-Up Solenoid
CL2	Paper Transport Clutch
CL51	Manual Feed Paper Take-Up Clutch
PWB-A	Main Control Board



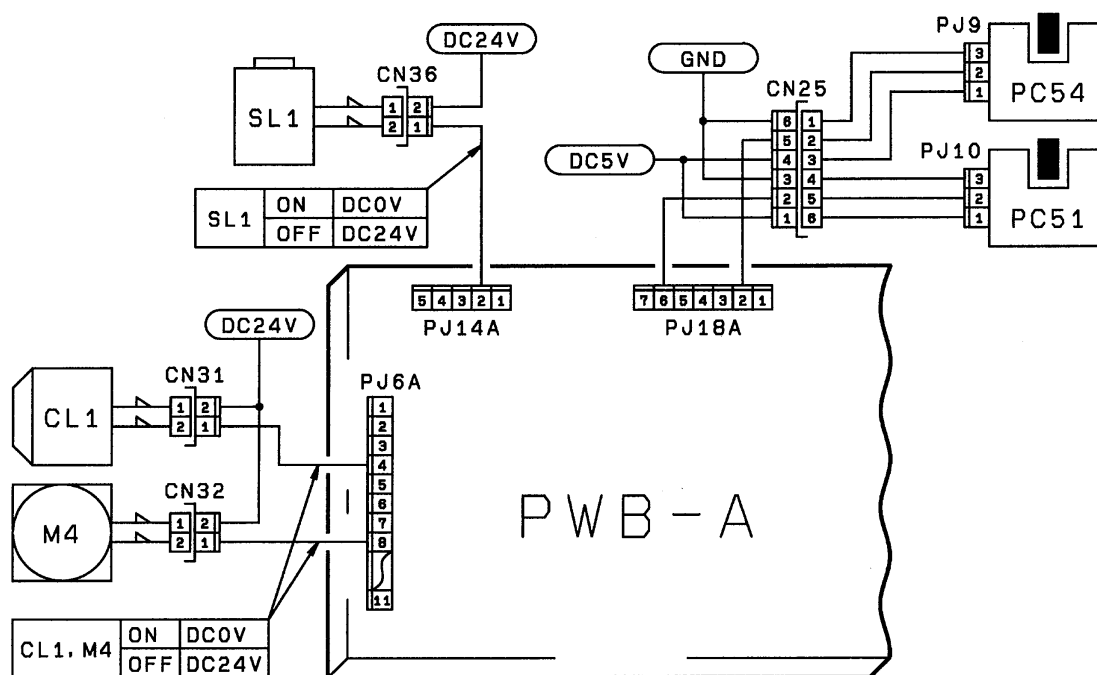
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◆ Bypass Port Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
	1	Does the misfeed occur when the Manual Bypass Table is used?	YES	Perform the troubleshooting procedure for "Transport/Separator Misfeed."
	2	Is paper taken up and fed in properly from the Drawer?	NO	Perform the troubleshooting procedure for "Copier Take-Up and Transport/Separator Misfeed."
● Paper is not taken up at all.	3	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	4	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	5	Are the Paper Take-Up Rolls pressed against the paper stack when the Start Key is pressed?  * Does the voltage across PJ11A-2 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Adjust the stroke of the Solenoid. Check the Solenoid.
			NO	Replace PWB-A.
	6	Does the voltage across PJ7A-5 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
	7	Is the Pressure Pad or Guide Plate deformed or dirty?	YES	Clean or replace the Pressure Pad or Guide Plate.
	8	Are the Paper Take-Up Rolls deformed, worn, or dirty with paper dust?	YES	Clean or replace the Paper Take-Up Rolls.
● Paper is stationary near the Transport Roller.	9	Check Transport Roller Sensor PC51. See p. T-3 (PWB-A (IC4A) APC7).	NO	Check the Actuator for operation. Check PC51.
	10	Does the voltage across PJ6A-6 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
	11	Is the Transport Roller or Guide Plate of the copier deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Roller or Guide Plate.

**1-6. Transport/Separator Misfeed**

Symbol	Name
PC51	Transport Roller Sensor
PC54	Paper Leading Edge Detecting Sensor
SL1	Separator Solenoid
CL1	Synchronizing Roller Clutch
M4	Suction Fan Motor
PWB-A	Main Control Board



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◆ Transport/Separator Misfeed Clearing Procedure

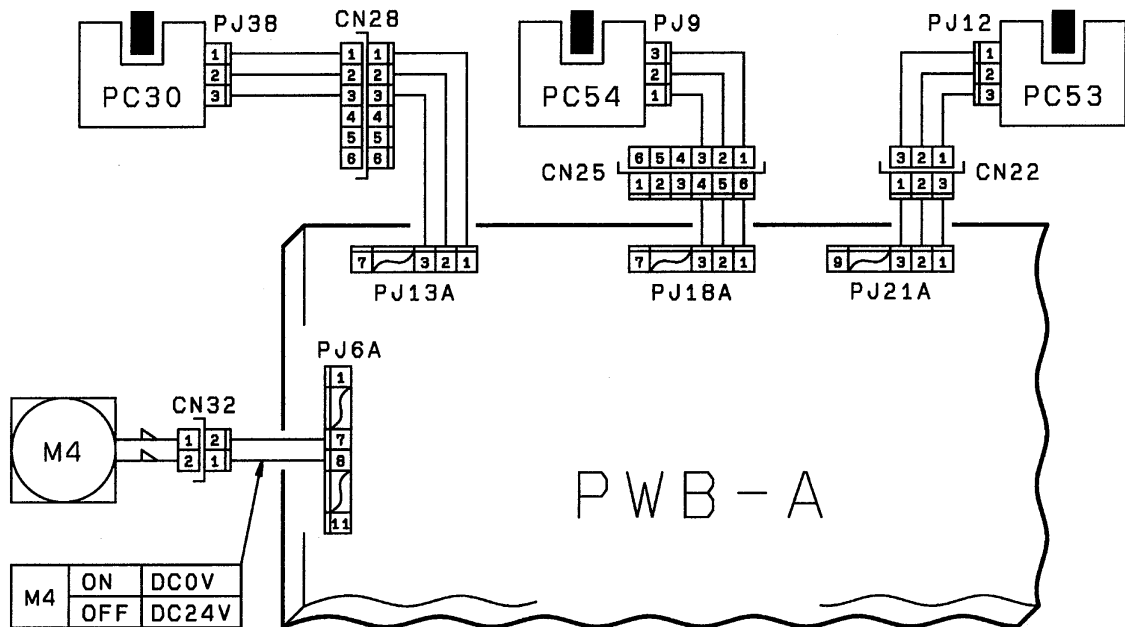
Symptom	Step	Check Item	Result	Action
● Paper is stationary before the Synchronizing Roller.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Check Paper Leading Edge Detecting Sensor PC54 See p. T-3 (PWB-A (IC4A) APC6).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC54.
	3	Do the Synchronizing Rollers turn?  * Does the voltage across PJ6A-4 on PWB-A and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Check the Clutch.
			NO	Replace PWB-A.
	4	Is a given length of loop formed before the Synchronizing Roller?	NO	Adjust the loop length or clean or replace the Transport Rollers.
● Paper is stationary near the PC Drum.	5	Is the Pre-Image Transfer Guide Plate deformed or dirty?	YES	Correct or clean the Guide Plate.
	6	Is the Corona Unit Cleaning Lever (Lower) in correct position?	NO	Place the Lever in position.
	7	Are the Image Transfer/Paper Separator Corona Wires deteriorated or dirty?	YES	Clean or replace the Wires.
	8	Are the Paper Guides deformed or dirty?	YES	Clean or replace the Paper Guides.
	9	Are the Synchronizing Rollers deformed, worn, or dirty with paper dust?	YES	Clean or replace the Synchronizing Rollers.

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Symptom	Step	Check Item	Result	Action
● Paper is wedged at the Paper Separator Fingers.	10	Does the voltage across PJ14A-2 on PWB-A and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Adjust the Solenoid, or check the Paper Separator Fingers for operation and clearance.
			NO	Replace PWB-A.
	11	Are the Paper Separator Fingers deformed or dirty?	YES	Correct or clean, or replace, the Paper Separator Fingers.
● Paper is stationary before the Suction Belts.	12	Check Transport Roller Sensor PC51. See p. T-3 (PWB-A (IC4A) APC7).	NO	Check the Actuator for operation. Check PC51.
	13	Check Paper Leading Edge Detecting Sensor PC54. See p. T-3 (PWB-A (IC4A) APC6).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC54.
	14	Do the Suction Belts turn properly?	YES	Check the Belts and Drive Gear.
	15	Is Suction Fan Motor M4 turning when the Start Key is pressed?  * Does the voltage across PJ6A-8 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the DC24V line. Check M4.
			NO	Replace PWB-A.

**1-7. Fusing/Exit Misfeed**

Symbol	Name
PC53	Paper Exit Sensor
PC30	2nd Paper Exit Sensor
PC54	Paper Leading Edge Detecting Sensor
M4	Suction Fan Motor
PWB-A	Main Control Board



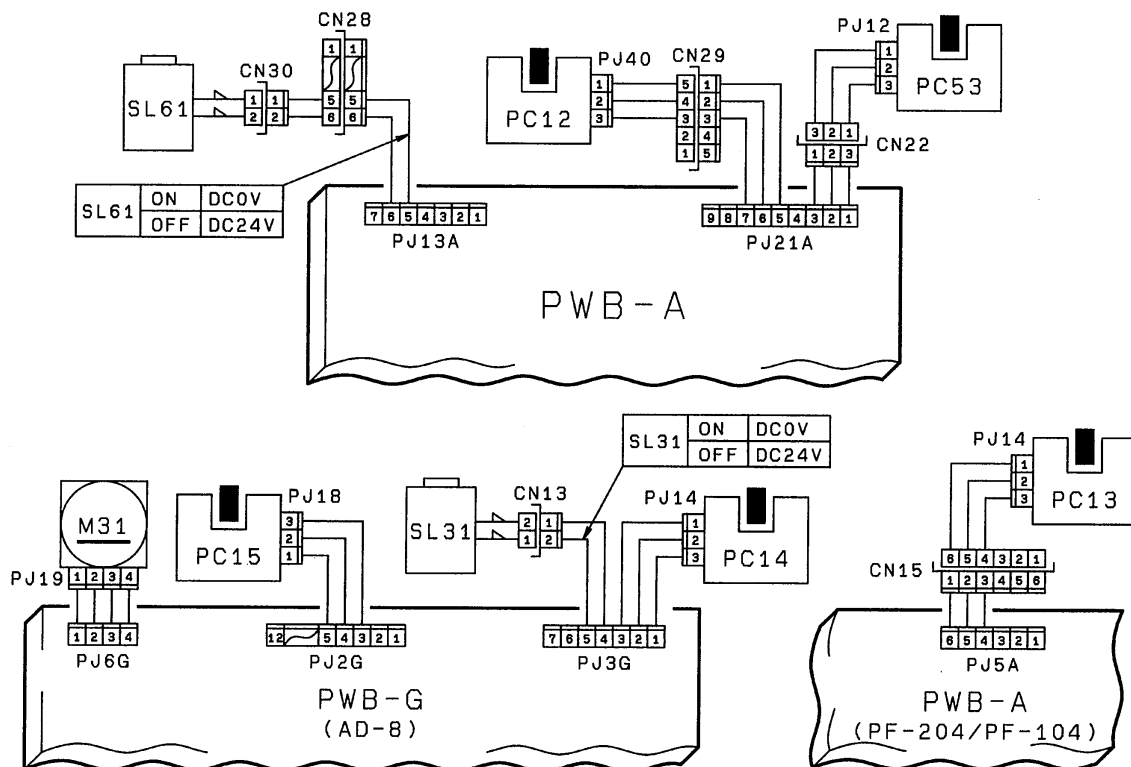
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◆ Fusing/Exit Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
● Paper is stationary before the Fusing Roller.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Is the Guide Plate dirty with toner?	YES	Clean the Guide Plate. Check for possible scattering of toner.
	3	Do the Suction Belts turn properly?	YES	Check the Belts and Drive Gear.
	4	Is Suction Fan Motor M4 turning when the Start Key is pressed?  * Does the voltage across PJ6A-8 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	YES	Check the DC24V line. Check M4.
			NO	Replace PWB-A.
● The leading edge of the paper is stationary near the Fusing Roller.	5	Are the Fusing Rollers scratched or dirty? Or, has the replacement time arrived for the Rollers?	YES	Clean or replace the Rollers.
	6	Are the Paper Separator Fingers dirty with toner or worn? Are their edges damaged?	YES	Clean or replace the Fingers.
	7	Is the Oil Roller dirty? Or, has the replacement time arrived for the Roller?	YES	Clean or replace the Roller.
● Paper is stationary after the Paper Exit Roller/Rolls.	8	Check 1st/2nd Paper Exit Sensor (PC53/PC30). See p. T-3. PC53: PWB-A (IC4A) APC5 PC30: PWB-A (IC4A) APB7	NO	Check the Actuator for operation. Check PC53 or PC30, or both.
	9	Check Paper Leading Edge Detecting Sensor PC54. See p. T-3 (PWB-A (IC4A) APC6).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC54.

**1-8. Duplex Unit Vertical Transport Misfeed**

Symbol	Name
PC12	Duplex Vertical Transport Sensor
PC13	Duplex Unit Turnover Path Sensor
PC14	Duplex Unit Trailing Sensor
PC15	Duplex Unit Paper Empty Sensor
PC53	1st Paper Exit Sensor
SL31	Duplex Unit Gate Switching Solenoid
SL61	Turnover/Exit Switching Solenoid
M31	Duplex Unit Drive Motor
PWB-A	Main Control Board
PWB-A	Master Board (PF-204/PF104/PF-4D)
PWB-G	Duplex Unit Master Board



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◆ Duplex Unit Vertical Transport Misfeed Clearing Procedure

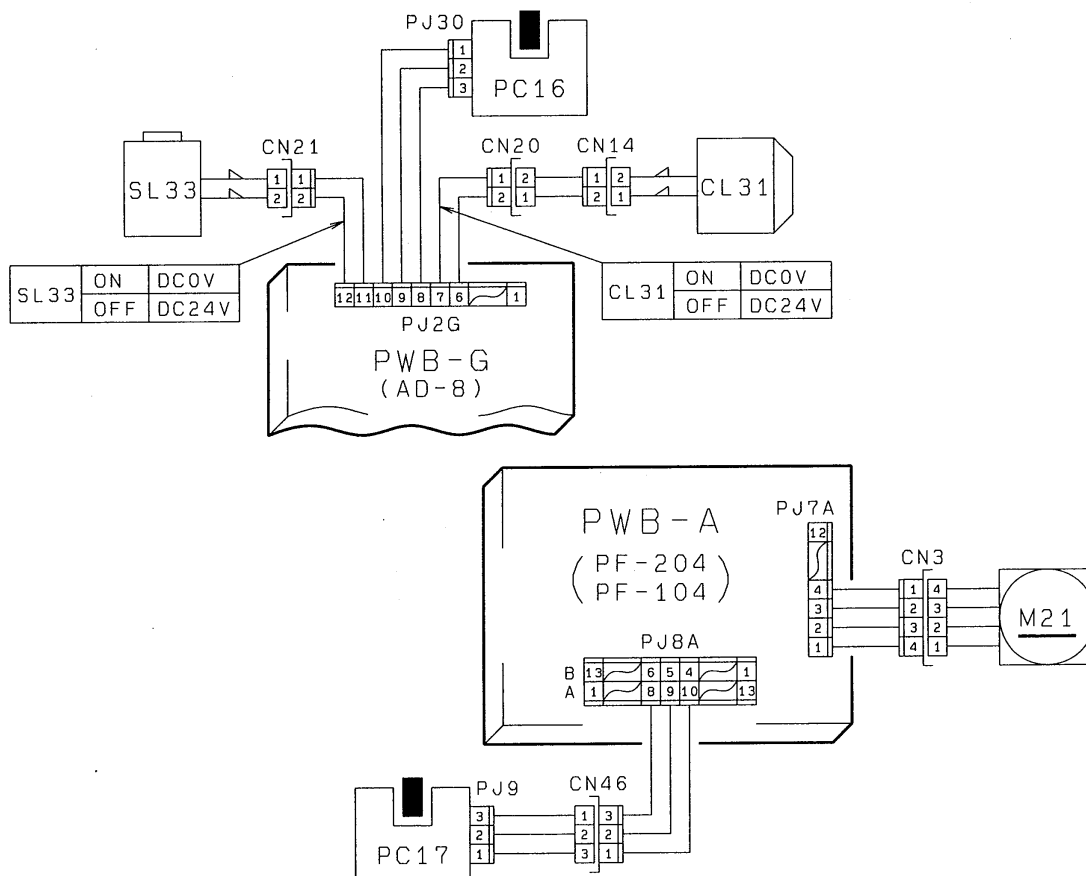
Symptom	Step	Check Item	Result	Action
● Paper is stationary near the Exit Section.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Does the voltage across PJ13A-5 on PWB-A and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Adjust the stroke of the Solenoid or check the Solenoid.
			NO	Replace PWB-A.
	3	Are the Turnover/Exit Switching Plate and Upper and Lower Guide Plates deformed or dirty?	YES	Clean or replace the Plates.
● Paper is stationary near the Vertical Transport Section of the Duplex Unit.	4	Is drive being transmitted to the Vertical Transport Roller of the Duplex Unit? (Is Duplex Unit Drive Motor M31 turning after the Start Key has been pressed?)	YES	Check for possible overload.
			NO	Check the Duplex Unit drive coupling or replace PWB-A (PF-204/PF-104/PF-4D) PWB-G, and/or M31.
	5	Check Duplex Vertical Transport Sensor PC12. See p. T-3 (PWB-A (IC5A) PA2).	NO	Check the Actuator for operation. Check PC12.
	6	Check 1st Paper Exit Sensor PC53. See p. T-3 (PWB-A)(IC4A)(APC5).	YES	Replace PWB-A.
			NO	Check the Actuator for operation. Check PC53.
● Paper is stationary near the Turnover Section.	7	Are the Paddle Roller, Slip Roller/Rolls, and Rolls B Release Lever deformed, worn, or dirty with paper dust?	YES	Clean or replace the Roller and/or Roll. Check the Release Lever mechanism.
			NO	Check the drive coupling from the Duplex Unit.
	8	Check Duplex Unit Turnover Path Sensor PC13. See p. T-3 (PF-204/PF-104/PF-4D) PWB-A IC2A PB0.	YES	Replace PWB-A (PF-204/PF-104/PF-4D).
			NO	Check the Actuator for operation and PC13.

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Symptom	Step	Check Item	Result	Action
<ul style="list-style-type: none"> <li>The leading edge of the paper is stationary inside the Duplex Unit.</li> </ul>	9	Is the Paper Guide Mylar deformed or dirty?	YES	Clean or replace the Mylar.
			NO	Check the Mylar moving mechanism.
	10	Does the Gate Switching Plate operate properly? (Is Duplex Unit Gate Switching Solenoid SL31 energized for a paper length of 300 mm or longer?)  * Does the voltage across PJ3G-5 on PWB-G and GND change from DC24V to DC0V after the Start Key has been pressed?	YES	Adjust the stroke of the Solenoid or check the Solenoid.
			NO	Replace PWB-G or PWB-A (PF-204/PF-104/PF-4D).
	11	Check Duplex Unit Paper Empty Sensor PC15. See p. T-3. (AD-8) PWB-G IC1G PC2.	YES	Check the Actuator for operation and PC14.
			NO	Replace PWB-G or PWB-A (PF-204/PF-104/PF-4D).
<ul style="list-style-type: none"> <li>Paper is stationary near the take-up port of the Duplex Unit.</li> </ul>	12	Check Duplex Unit Trailing Sensor PC14. See p. T-3. (AD-8) PWB-G IC1G PC1.	YES	Check the Actuator for operation and PC15.
			NO	Replace PWB-G or PWB-A (PF-204/PF-104/PF-4D).

**1-9. Duplex Unit Take-Up Misfeed**

Symbol	Name
PC16	Duplex Unit Paper Take-Up Sensor
PC17	Vertical Transport Detection Sensor 3
SL33	Duplex Unit Pick-Up Solenoid
CL31	Duplex Unit Paper Take-Up Clutch
M21	Vertical Transport Drive Motor
PWB-A	Master Board (PF-204/PF-104/PF-4D)
PWB-G	Duplex Unit Master Board



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◆ Duplex Unit Take-Up Misfeed Clearing Procedure

Symptom	Step	Check Item	Result	Action
● Paper is not taken up at all.	1	Is the paper curled, waved, or damp?	YES	Change the paper. Instruct the user in how to store the paper.
	2	Is Duplex Unit Pick-Up Solenoid SL33 energized when paper take-up is about to occur?  * Slide out the Duplex Unit and remove the PWB Cover. Then, slide the Duplex Unit back into the copier. Does the voltage across PJ2G-12 on PWB-G and GND change from DC24V to DC0V when the Start Key is pressed in the above condition?	YES	Adjust the stroke of the Solenoid or check the pick-up mechanism.
			NO	Replace PWB-G or PWB-A (PF-204/PF-104/PF-4D).
	3	Is Duplex Unit Paper Take-Up Clutch CL31 energized when a copy is taken up and fed into the copier from the Duplex Unit?  * Slide out the Duplex Unit and remove the PWB Cover. Then, slide the Duplex Unit back into the copier. Does the voltage across PJ2G-7 on PWB-G and GND change from DC24V to DC0V when the Start Key is pressed in the above condition?	YES	Check the Clutch.
			NO	Replace PWB-G or PWB-A (PF-204/PF-104/PF-4D).
	4	Are the Take-Up Roll, Feed Roll, and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or replace the Rolls.

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Symptom	Step	Check Item	Result	Action
● Paper is stationary near the Vertical Transport Section.	5	Is Vertical Transport Drive Motor M21 turning when a copy is taken up and fed into the copier from the Duplex Unit?	YES	Check for possible overload.
			NO	Check the Duplex Unit drive coupling, or replace PWB-A (PF-204/PF-104/PF-4D), PWB-G, and/or M21.
	6	Are the Vertical Transport Rollers and Guide Plate deformed, worn, or dirty with paper dust?	YES	Clean or replace the Vertical Transport Rollers and Guide Plate.
	7	Check Duplex Unit Paper Take-Up Sensor PC16. (AD-8) PWB-G IC1G PC0.	NO	Check the Actuator for operation. Check PC16.
	8	Check Vertical Transport Detection Sensor 3 PC17. See p. T-3 (PF-204/PF-104/PF-4D) PWB-A IC1A PC3.	YES	Replace PWB-G or PWB-A (PF-204/PF-104/PF-4D).
			NO	Check the Actuator for operation. Check PC17.

## 2. Wrinkles in Paper

Step	Cause		Check Item	Result	Action
1	Paper		Is the problem solved when new paper is used?	YES	Change the paper (that meets product specifications). Instruct the user in how to store the paper.
2	Paper Take-Up Section		Is the paper taken up and fed in properly?	NO	Check the Drawer and Paper Take-Up Rolls and adjust, clean, and/or replace the parts as necessary. (See "Skewed Feed" that appears later.)
3	Transport Section		Are any of the Belts slack or the Suction Deck dirty?	YES	Replace all Belts together or clean the Suction Deck.
4	Fusing Unit	Pre-Fusing Guide Plate	Is the Guide Plate dirty with toner or other foreign matter?	YES	Clean the Guide Plate.
5		Thermistor	Is the Thermistor damaged or dirty with toner?	YES	Clean or replace the Thermistor.
6			Is the Thermistor in positive contact with the Upper Fusing Roller?	NO	Move the Thermistor Mounting Bracket up or down as necessary so that the Thermistor comes in positive contact with the Upper Fusing Roller.
7		Fusing Rollers	Has the Roller replacement time arrived?	YES	Replace the Rollers.
8		Width of area of contact between the Upper and Lower Fusing Rollers	Does the location of wrinkles change when the position of the left and right Pressure Springs are changed?	YES	Replace the two Pressure Springs together.

## 3. Double Feed

Step	Cause		Check Item	Result	Action
1	Paper		Is the problem solved when new paper is used?	YES	Change the paper (that meets product specifications). Instruct the user in how to store the paper.
2	Paper Take-Up Section	Paper Take-Up Roll	Is the Paper Take-Up Roll dirty, or has its replacement time arrived?	YES	Clean or replace the Paper Take-Up Roll.
			Are the Paper Take-Up Rolls located correctly? (For the Copier's 1st Drawer)	NO	Change the locations of the Rolls according to the paper size being used.
3		Paper Separator Roll	Is the Paper Separator Roll dirty, or has its replacement time arrived? (For the 3rd and 4th Drawers)	YES	Clean or replace the Paper Separator Roll.
4		Paper Lifting Plate and Springs (Copier's 1st Drawer)	Are the correct type of Paper Lifting Springs being used or are they positioned correctly? Or, has the Paper Lifting Plate warped?	NO	Change the type and position of the Lifting Springs or replace the Lifting Plate according to the paper size being used.

**4. Skewed Feed**

Step	Cause	Check Item	Result	Action
1	Paper	Is the problem solved when new paper is used?	YES	Change the paper (that meets product specifications). Instruct the user in how to store the paper.
2	Paper Take-Up Roll	Is the Paper Take-Up Roll dirty, or has its replacement time arrived?	YES	Clean or replace the Paper Take-Up Roll.
		Are the Paper Take-Up Rolls located correctly? (For the Copier's 1st Drawer)	NO	Change the locations of the Rolls according to the paper size being used
3	Paper Separator Roll	Is the Paper Separator Roll dirty, or has its replacement time arrived? (For the 3rd and 4th Drawers)	YES	Clean or replace the Paper Separator Roll.
4	Paper Lifting Plate and Springs (Copier's 1st Drawer)	Are the correct type of Paper Lifting Springs being used or are they positioned correctly? Or, has the Paper Lifting Plate warped?	NO	Change the type and position of the Lifting Springs or replace the Lifting Plate according to the paper size being use
5	Paper Dust Remover	Is the Paper Dust Remover dirty with paper dust?	YES	Clean the Paper Dust Remover and Upper Synchronizing Roller.
6	Transport Rollers	Are the Transport Rollers dirty or worn? Or Has their replacement time arrived?	YES	Adjust the loop length in the Adjust Mode. Clean or replace the Transport Rollers.
7	Synchronizing Rollers	Are the Synchronizing Rollers dirty or worn? Or Has their replacement time arrived?	YES	Adjust the loop length in the Adjust Mode. Clean or replace the Synchronizing Rollers.
8	Suction Unit	Are any of the Belts left slack or the Suction Deck dirty?	YES	Replace the three Belts at once or clean the Suction Deck.
9	Pre-Fusing Guide Plate	Is the Guide Plate dirty with toner or other foreign matter?	YES	Clean the Guide Plate.

## 4 MALFUNCTION

### 1. Detection Timings Classified by Malfunction Codes

#### C00XX Drive Malfunctions

Code	Description	Detection Timing
C0000	Main Drive Motor M2's failure to turn	The lock signal remains HIGH for a continuous 1-sec. or more period while M2 remains energized.
C0001	Main Drive Motor M2 turning at abnormal timing	The lock signal remains LOW for a continuous 1-sec. or more period while M2 remains deenergized.
C0010	PC Drive Motor M1's failure to turn	The lock signal remains HIGH for a continuous 1-sec. or more period while M1 remains energized.
C0011	PC Drive Motor M1 turning at abnormal timing	The lock signal remains LOW for a continuous 1-sec. or more period while M1 remains deenergized.
C004C	Cooling Fan Motor M9's failure to turn	The lock signal remains HIGH for a continuous 3-sec. or more period while M9 remains energized.
C0070	Toner Replenishing Motor M8's failure to turn	<ul style="list-style-type: none"> <li>• Toner Hopper Home Position Sensor PC112 does not go LOW within 12 seconds after M8 has been energized.</li> <li>• PC112 does not go LOW within 12 seconds after M8 has been energized and PC112 gone HIGH.</li> </ul>
C0071	Toner Replenishing Motor M8 turning at abnormal timing	PC112 is HIGH 2 seconds after M8 has been deenergized.

#### C04XX Exposure Lamp Malfunctions

Code	Description	Detection Timing
C0400	Exposure Lamp LA1's failure to turn ON	The output from AE Sensor Board PWB-H does not become 4.3V or less for the period between when LA1 turns ON and the Scanner starts a scan motion and when the Image Leading Edge signal (BASE) turns ON.
C0410	Exposure Lamp LA1 turning ON at abnormal timing	With LA1 OFF, the output from PWB-H remains 4.1V or less for a continuous 2-second period at any timing while the Scanner is at the home position or the Original Cover is lowered.

## C05XX Fusing Malfunctions 2/ Code

Code	Description	Detection Timing										
C0500	Warming-up failure	<p>The surface temperature of the Upper Fusing Roller does not reach a given level after a given period of time during warming-up as detailed below:</p> <table><tr><th>Temperature</th><th>Time</th></tr><tr><td>From room temperature to 50°C</td><td>Within 40 seconds</td></tr><tr><td>50°C to 100°C</td><td>Within 40 seconds</td></tr><tr><td>100°C to 160°C</td><td>Within 40 seconds</td></tr><tr><td>*1: 160°C to 210°C *2: 160°C to 190°C</td><td>Within 30 seconds</td></tr></table> <p>*1: The fusing temperature remains below 100°C when the warming-up cycle is started. *2: The fusing temperature exceeds 100°C when the warming-up cycle is started.</p>	Temperature	Time	From room temperature to 50°C	Within 40 seconds	50°C to 100°C	Within 40 seconds	100°C to 160°C	Within 40 seconds	*1: 160°C to 210°C *2: 160°C to 190°C	Within 30 seconds
Temperature	Time											
From room temperature to 50°C	Within 40 seconds											
50°C to 100°C	Within 40 seconds											
100°C to 160°C	Within 40 seconds											
*1: 160°C to 210°C *2: 160°C to 190°C	Within 30 seconds											
C0510	Abnormally low fusing temperature	The surface temperature of the Upper Fusing Roller is 120°C or less, as detected by Fusing Thermistor 1 TH1 for 1 second or longer after the copier has completed warming up.										
C0520	Abnormally high fusing temperature	The surface temperature of the Upper Fusing Roller is 230°C or higher, as detected by TH1 for 1 second or longer after the copier has completed warming up. Or, the temperature is 250°C or higher as detected by TH2 for 1 seconds or more.										

## C06XX Optical Malfunctions

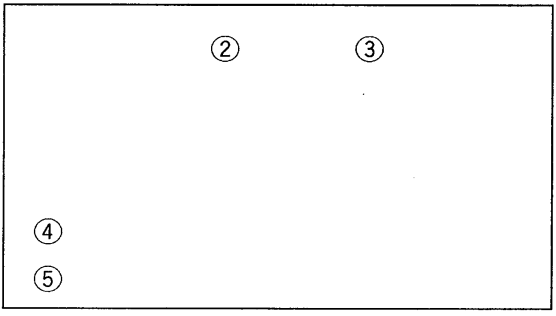
Code	Description	Detection Timing
C0600	Scanner Motor M5 malfunction	<ul style="list-style-type: none"> <li>When the Scanner is at a position other than home, Scanner Reference Position Sensor PC81 does not go from HIGH to LOW even after the lapse of 20 seconds after the Power Switch has been turned ON.</li> <li>When the Scanner is at the home position, PC81 does not go from LOW to HIGH even after the lapse of 5 seconds after the Scanner has started a scan motion.</li> <li>PC81 does not go from HIGH to LOW even after the lapse of 20 seconds after the Scanner has started a scan motion.</li> </ul>
C0610	Lens Motor M6 malfunction	The output from Lens Reference Position Sensor PC90 does not go from HIGH to LOW, or vice versa, even after the lapse of 15 seconds after M5 has started turning.
C0620	Mirror Motor M7 malfunction	The output from Mirror Reference Position Sensor PC86 does not go from HIGH to LOW even after the lapse of 10 seconds after M6 has started turning.

## C09XX Paper Take-Up Malfunctions

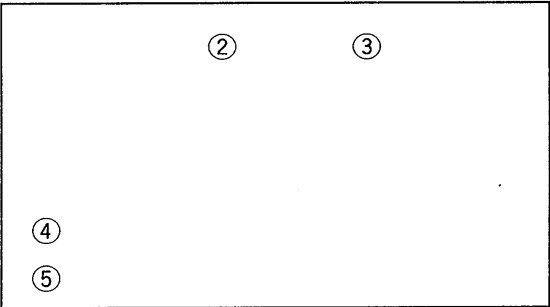
Code	Description	Detection Timing
C0900	3rd Drawer upward motion failure	See the PF-204 Service Manual.
C0904	3rd Drawer Lift-Up Motor M24's failure to turn	
C0950	4th Drawer upward motion failure	See the PF-204 Service Manual.
C0954	4th Drawer Lift-Up Motor M25's failure to turn	
C0990	Main Tray upward motion failure	See the PF-104 Service Manual.
C0991	Main Tray downward motion failure	
C0992	Main Tray downward motion failure	
C0993	Main Tray upward motion failure	
C0994	Elevator Motor M26's failure to turn	
C0996	Main Tray ejection failure	
C0998	Shifter transfer failure	
C0999	Shifter return failure	
C099A	Shifter return failure	
C099b	Shifter transfer failure	
C099C	Shift Motor M27's failure to turn	
C099E	Shift Gate (advanced) position detection failure	
C099F	Shift Gate (retracted) position detection failure	

# C0FXX Sensor Malfunctions

Code	Description	Detection Timing
C0F02	Original Size Detecting Board UN2 malfunction	<ul style="list-style-type: none"> <li>• Undefined data has been input to the master CPU.</li> <li>• The fixed-cycle pulse signal (Busy) remains HIGH or LOW for 3 seconds or more.</li> <li>• The fixed-cycle pulse signal (Busy) remains HIGH or LOW for 5 seconds or more.</li> </ul>
C0F10	AE Sensor Board PWB-H malfunction	The output from the AE Sensor does not fall within the optimum range during an F5 operation.
C0F30	ATDC Sensor UN3 adjustment failure	The output from UN3 does not fall within the optimum range during an F8 operation.
C0F79	Paper Empty Sensor failure	See the PF-104 Service Manual.

C0FE4	Original Size Detecting Sensor ③ failure	<p>&lt;Detection Timing&gt; After having read the output data from PC113 to PC116, UN2 determines that there is a failure.</p> <p>&lt;Sensor Layout&gt; ② : PC113      ④ : PC114 ③ : PC115      ⑤ : PC116</p>  <p>1150T003AA</p>
C0FE6	Original Size Detecting Sensor ② and ③ failure	
C0FE8	Original Size Detecting Sensor ④ failure	
C0FEA	Original Size Detecting Sensor ② and ④ failure	
C0FEC	Original Size Detecting Sensor ③ and ④ failure	
C0FEE	Original Size Detecting Sensor ②, ③, and ④ failure	



Code	Description	Detection Timing
C0FF0	Original Size Detecting Sensor ⑤ failure	<Detection Timing> ② : PC113      ④ : PC114 ③ : PC115      ⑤ : PC116 
C0FF2	Original Size Detecting Sensor ② and ⑤ failure	
C0FF4	Original Size Detecting Sensor ③ and ⑤ failure	
C0FF6	Original Size Detecting Sensor ②, ③, and ⑤ failure	
C0FF8	Original Size Detecting Sensor ④ and ⑤ failure	
C0FFA	Original Size Detecting Sensor ② ④, and ⑤ failure	
C0FFC	Original Size Detecting Sensor ③, ④ and ⑤ failure	
C0FFE	Original Size Detecting Sensor ②, ③, ④, and ⑤ failure	

1150T003AA

# **C0bXX Staple Sorter/Sorter Malfunctions**

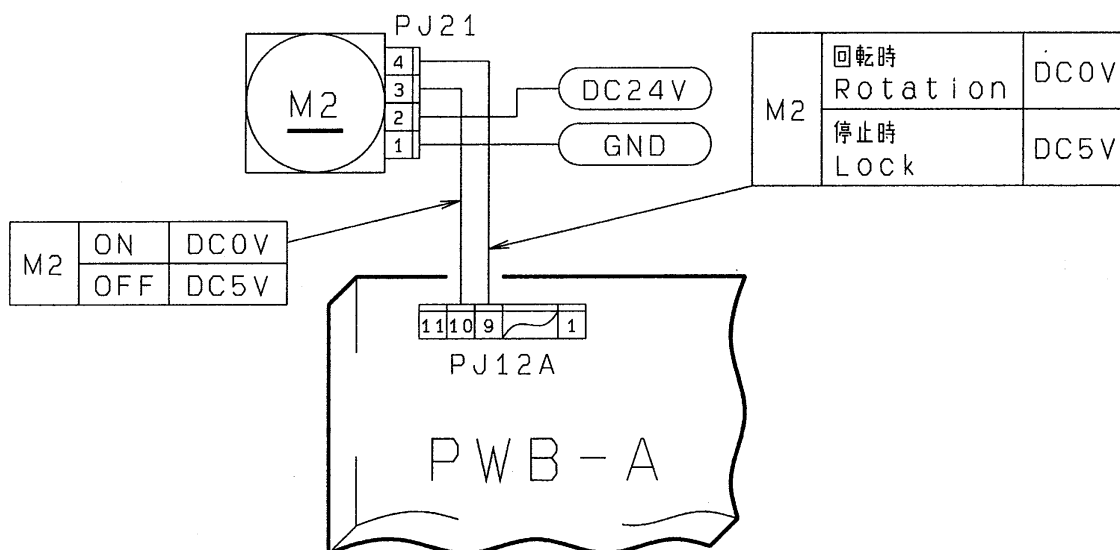
Code	Description	Detection Timing
C0b10	Paper Clamp Unit motion failure	See the ST-104/S-106 Service Manual.
C0b11		
C0b30	Paper Aligning Mechanism drive failure	
C0b31		
C0b50	Stapling failure	
C0b51		
C0b52		
C0b60	Bin motion failure	
C0b61		
C0b62		
C0b63		
C0b64		
C0b65		

# **C0dXX Duplex Unit Malfunctions**

<b>Code</b>	<b>Description</b>	<b>Detection Timing</b>
C0d00	Front/Rear Edge Guide Plates home position detection failure	See the AD-8 Service Manual.
C0b20	Gate Unit home position detection failure	
C0b50	Duplex Unit Drive Motor M31's failure to turn	
C0b51	Duplex Unit Drive Motor M31 turning at abnormal timing	

**1-1. C0000: Main Drive Motor's failure to turn****C0001: Main Drive Motor turning at abnormal timing**

Symbol	Name
M2	Main Drive Motor
PWB-A	Main Control Board

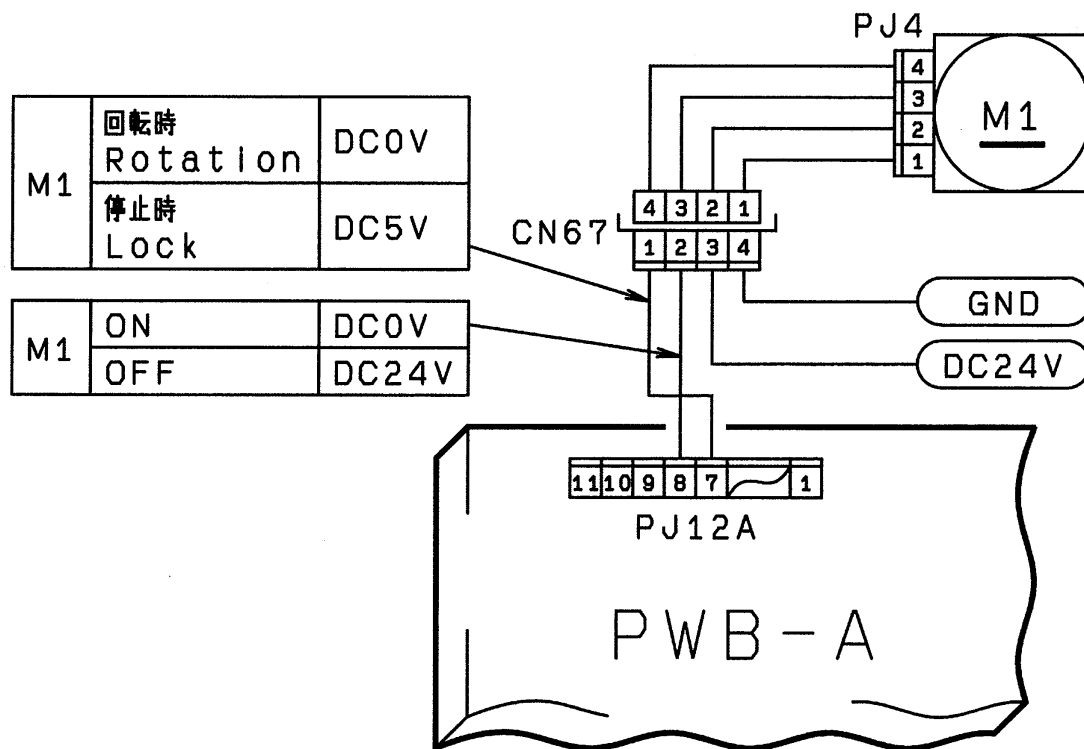


1151C18TAA

Step	Check Item	Result	Action
1	Is C0001 being shown?	YES	Begin with step 5.
2	Does M2 start to turn when the Start Key is pressed?	YES	Check rolls/rollers and gears for possible overload.
3	Does the voltage across PJ12A-10 on PWB-A and GND change from DC5V to DC0V when the Start Key is pressed?	NO	Replace PWB-A.
4	Does the voltage across PJ12A-9 on PWB-A and GND remain DC5V when the Start Key is pressed?	YES	Replace M2.
		NO	Replace PWB-A.
5	Does the voltage across PJ12A-10 on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace PWB-A.
6	Does the voltage across PJ12A-9 on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace M2.
		NO	Replace PWB-A.

**1-2. C0010: PC Drive Motor's failure to turn****C0011: PC Drive Motor turning at abnormal timing**

Symbol	Name
M1	PC Drive Motor
PWB-A	Main Control Board

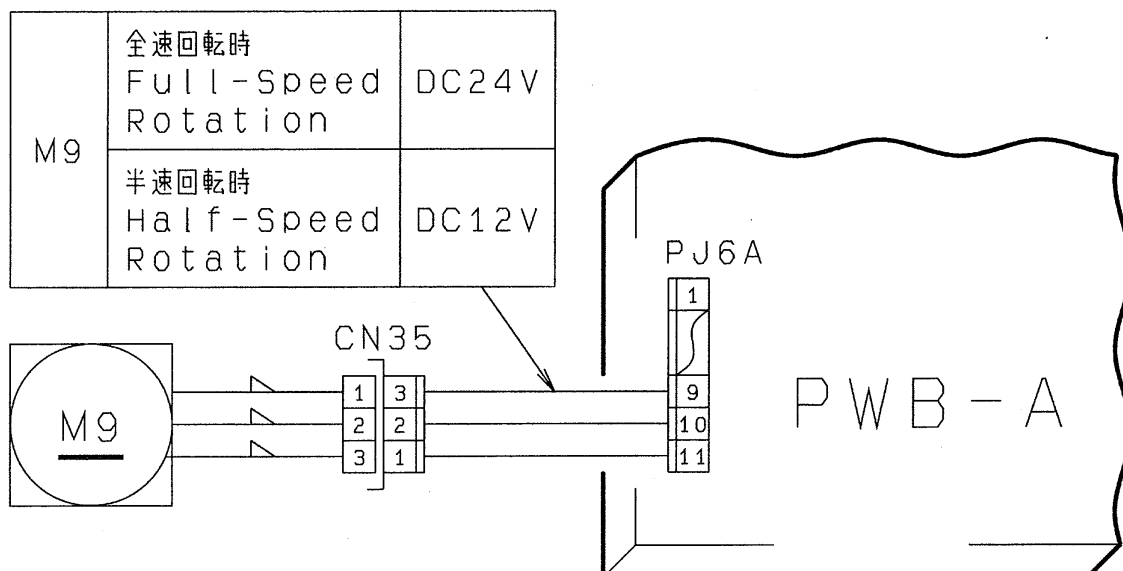


1151C17TAA

Step	Check Item	Result	Action
1	Is C0011 being shown?	YES	Begin with step 5.
2	Does M1 start to turn when the Start Key is pressed?	YES	Check gears for possible overload.
3	Does the voltage across PJ12A-8 on PWB-A and GND change from DC24V to DC0V when the Start Key is pressed?	NO	Replace PWB-A.
4	Does the voltage across PJ12A-7 on PWB-A and GND remain DC5V when the Start Key is pressed?	YES	Replace M1.
		NO	Replace PWB-A.
5	Does the voltage across PJ12A-8 on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace PWB-A.
6	Does the voltage across PJ12A-7 on PWB-A and GND remain DC0V when the Power Switch is turned ON?	YES	Replace M1.
		NO	Replace PWB-A.

**1-3. C004C: Cooling Fan Motor's failure to turn**

Symbol	Name
M9	Cooling Fan Motor
PWB-A	Main Control Board



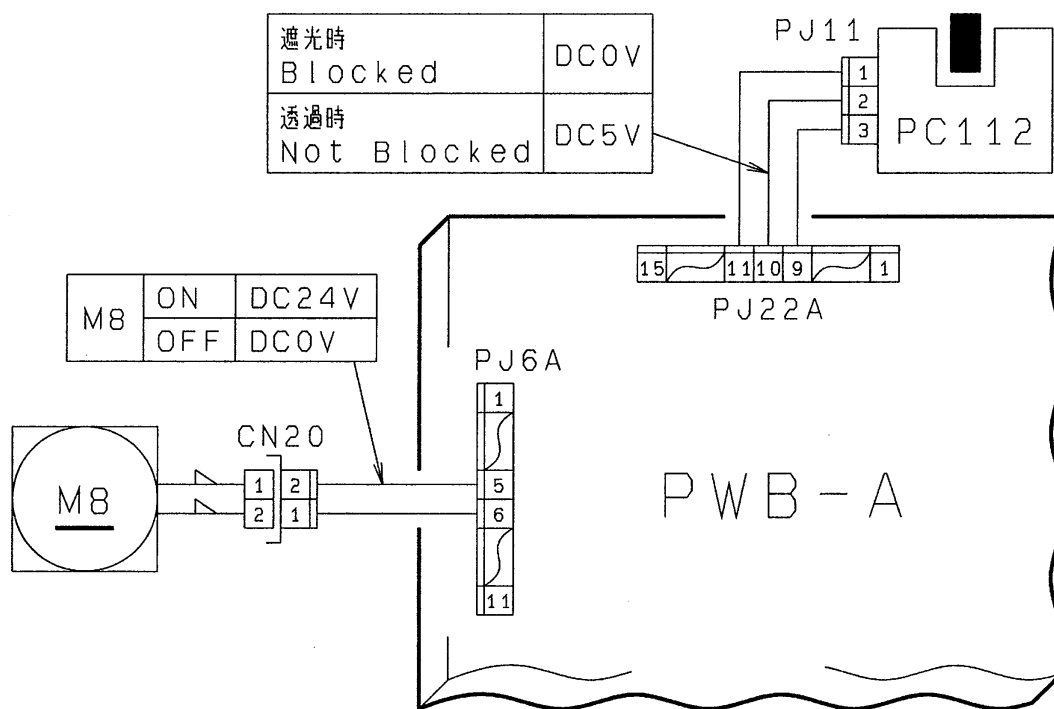
1151C16TAA

**C004C**

Step	Check Item	Result	Action
1	Is M9 turning at low speed when the Power Switch is in the ON position?	NO	Begin with step 3.
2	Does the voltage across PJ6A-9 on PWB-A and GND change from DC12V to DC24V when the Start Key is pressed?	YES	Replace M9.
		NO	Replace PWB-A.
3	Is the voltage across PJ6A-9 on PWB-A and GND DC12V when the Power Switch is in the ON position?	YES	Replace M9.
		NO	Replace PWB-A.

**1-4. C0070: Toner Replenishing Motor's failure to turn****C0071: Toner Replenishing Motor turning at abnormal timing**

Symbol	Name
PC112	Toner Hopper Home Position Sensor
M8	Toner Replenishing Motor
PWB-A	Main Control Board

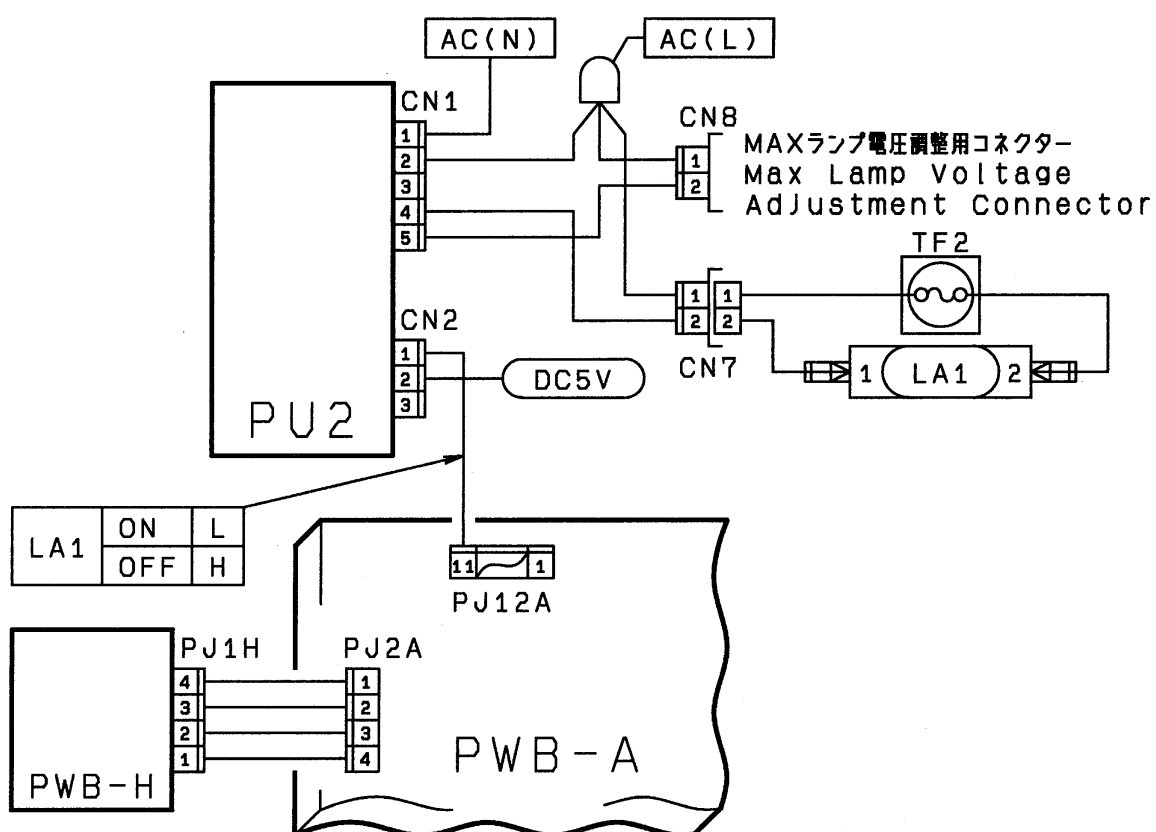


1151C09TAA

Step	Check Item	Result	Action
1	Is C0071 being shown?	YES	Begin with step 3
2	Does the Toner Bottle turn when two or three copies are made with the Original Cover raised?	YES	Perform step 3.
		NO	Perform step 4.
3	Make two or three copies with the Original Cover raised. Does the voltage across PJ22A-10 on PWB-A and GND change to DC0V when the Toner Bottle is stopped and to DC5V when the Bottle is turned during the copy cycle?	YES	Replace PWB-A.
		NO	Check the Bottle Holder or PC112.
4	Make two or three copies with the Original Cover raised. Does the voltage across PJ6A-5 on PWB-A and GND change to DC0V when the Toner Bottle is stopped and to DC24V when the Bottle is turned during the copy cycle?	YES	Replace M8.
		NO	Replace PWB-A.

**1-5. C0400: Exposure Lamp's failure to turn ON****C0410: Exposure Lamp turning ON at abnormal timing**

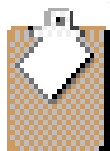
Symbol	Name
LA1	Exposure Lamp
TF2	Exposure Lamp Thermal Fuse
PWB-A	Main Control Board
PWB-H	AE Sensor Board
PU2	DC Power Supply Unit



1150C03TAA

C0400

Step	Check Item	Result	Action
1	Does LA1 light up when the Start Key is pressed?	YES	Check the photo receiver of the AE Sensor for contamination. Replace PWB-H or PWB-A.
2	Does the voltage across PJ12A-11 on PWB-A and GND become DC4.3V or less when LA1 turns ON?	NO	Replace PWB-A.
3	Disconnect CN7 (2P). Is there continuity across CN7-1 and 2 on the LA1 side?	NO	Check LA1 and TF2 for continuity.
4	Is the voltage across PJ2-1 and 2 on PU1 AC100V?	YES	Replace PU1.
		NO	Check DC Power Supply Unit PU2 and Power Supply Board PWB-C.



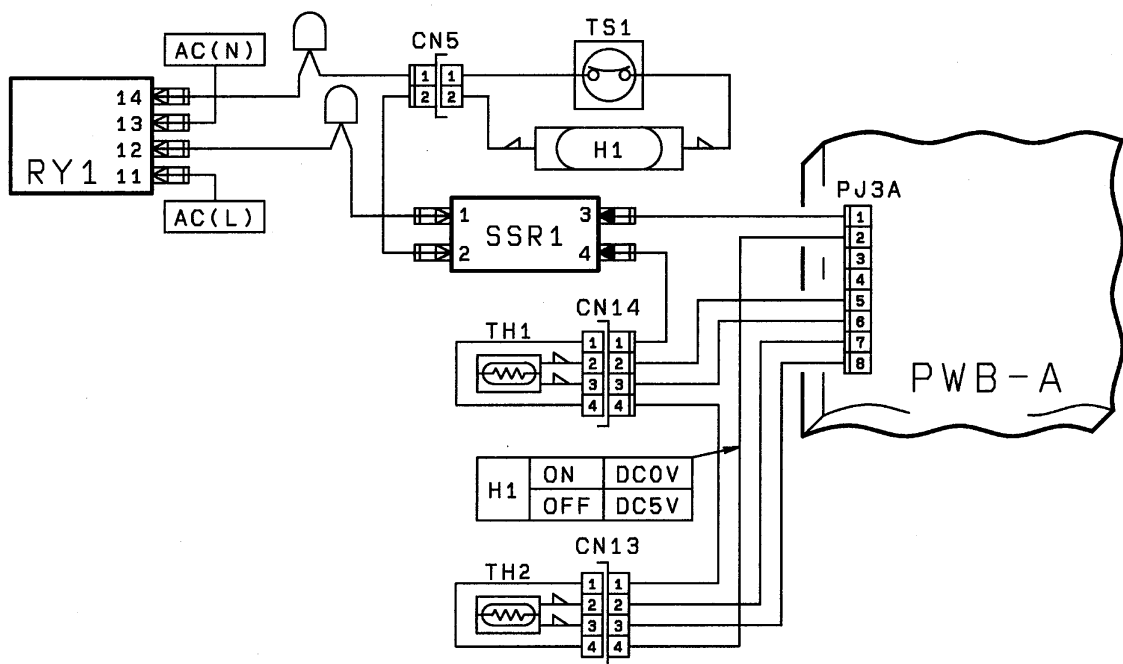
C0410

Step	Check Item	Result	Action
A	Does LA1 turn ON when the Power Switch is turned ON or in the standby state?	NO	Check to see if the photo receiver of the AE Sensor is receiving extraneous light. Replace PWB-H or PWB-A.
B	Does the voltage across PJ12A-11 on PWB-A and GND remain DC4.3V or lower when the Power Switch is turned ON or in the standby state?	YES	Replace PWB-A.
		NO	Replace PU1.



**1-6. C0500: Warm-up failure****C0510: Abnormally low fusing temperature****C0520: Abnormally high fusing temperature**

Symbol	Name
H1	Fusing Heater Lamp
TS1	Fusing Thermoswitch
TH1	Fusing Thermistor 1
TH2	Fusing Thermistor 2
PWB-A	Main Control Board
UN1	SSR



1150C14TAA

## C0500, C0510

\* After resetting a C0510 condition, C0500 will be shown if the same problem recurs. For this reason, the same troubleshooting procedure is used for C0500 and C0510.

Step	Check Item	Result	Action
1	Does H1 light up when the Power Switch is turned ON?	YES	Check TH1 for installation or clean it.
		NO	Begin with step 3.
2	Disconnect CN14 (4P). Is the resistance across CN14-2 and 3 on the TH1 side infinity?	YES	Replace TH1.
		NO	Replace PWB-A.
3	Does the voltage across PJ3A-2 on PWB-A and GND change from DC4.5V to DC0V when the Front Door is closed with the Power Switch in the ON position?	NO	Replace PWB-A.
4	Disconnect CN5 (2P). Is there continuity across CN5-1 and 2 on the Fusing Unit side?	YES	Replace UN1.
		NO	Check H1 and TF1 for continuity.

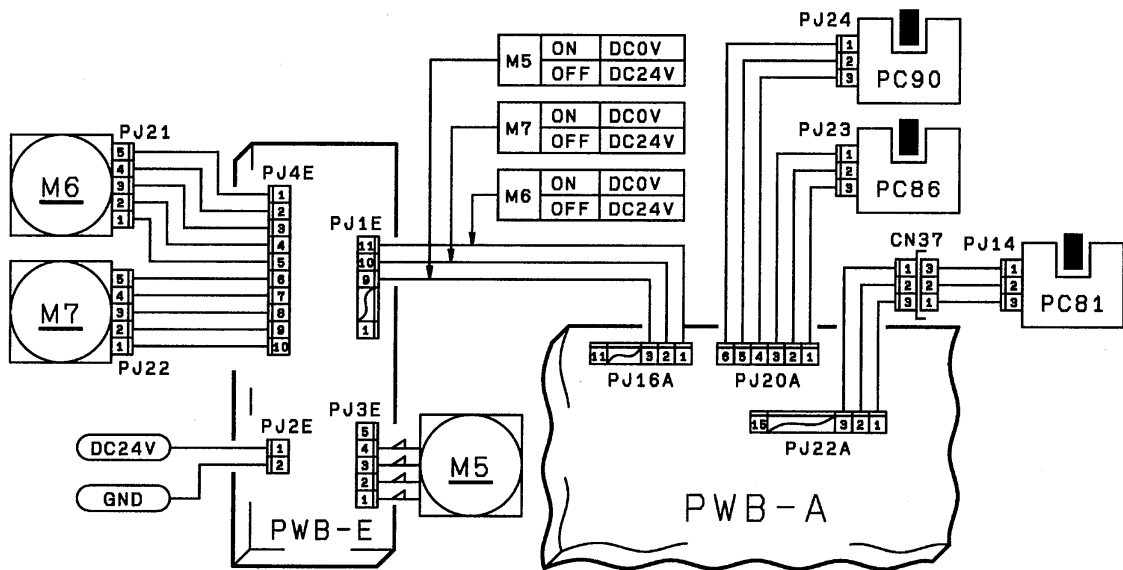
## C0520



Step	Check Item	Result	Action
A	Does H1 remain lit up even after the copier has completed warming up?	YES	Begin with step B.
		NO	Begin with step C.
B	Does the voltage across PJ3A-2 on PWB-A and GND remain DC0V even after the copier has completed warming up?	YES	Replace PWB-A.
		NO	Replace UN1.
C	Disconnect CN14 (4P). Is the circuit across CN14-2 and 3 on the Fusing Unit side short-circuited?	YES	Replace TH1.
		NO	Replace PWB-A.

**1-7. C0600: Scanner Motor malfunction****C0610: Lens Motor malfunction****C0620: Mirror Motor malfunction**

Symbol	Name
M5	Scanner Motor
M6	Lens Motor
M7	Mirror Motor
PC81	Scanner Reference Position Sensor
PC86	Mirror Reference Position Sensor
PC90	Lens Reference Position Sensor
PWB-A	Main Control Board
PWB-E	Motor Drive Board



1150C13TAA

## C0600

Step	Check Item	Result	Action
1	Does the Scanner start moving after the Power Switch has been turned ON?	YES	Perform step 3.
2	Does the voltage across PJ16A-3 on PWB-A and GND change from DC5V to DC0V after the Power Switch has been turned ON?	YES	Replace PWB-E or M5.
		NO	Replace PWB-A.
3	Check Scanner Reference Position Sensor PC81. See p. T-3 (PWB-A (IC4A) APB0)	YES	Check the Scanner Drive Cable for tension and overload. Or, replace PWB-A.
		NO	Check PC81.

## C0610

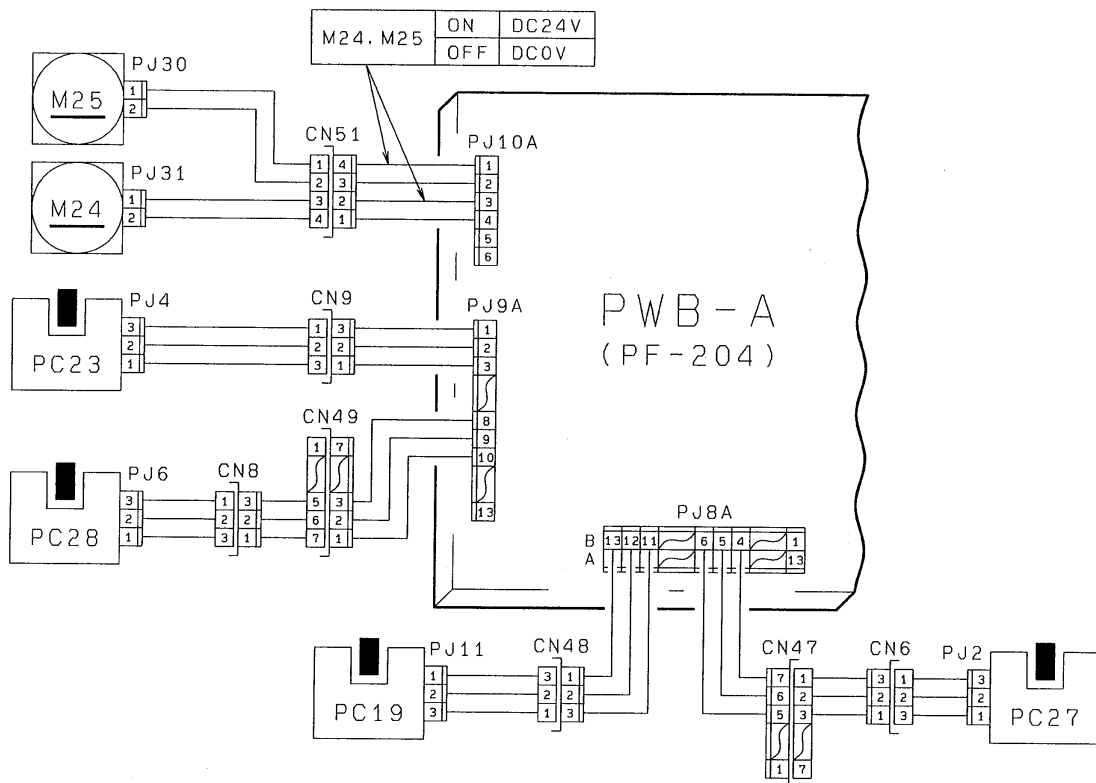
Step	Check Item	Result	Action
A	Does M6 start turning after the Power Switch has been turned ON?	YES	Perform step D.
B	Does the voltage across PJ16A-1 on PWB-A and GND change from DC5V to DC0V after the Power Switch has been turned ON?	NO	Replace PWB-A.
C	Is the voltage across PJ3E-5 on PWB-E and GND DC24V after the Power Switch has been turned ON?	YES	Replace PWB-E or M6.
		NO	Check the 24V line.
D	Check Lens Reference Position PC90. See p. T-3 (PWB-A (IC4A) APB1)	YES	Check the Lens Drive Cable for tension and overload. Or, replace PWB-A.
		NO	Check PC90.

## C0620

Step	Check Item	Result	Action
I	Does M7 start turning?	YES	Perform step III.
II	Does the voltage across PJ16A-2 on PWB-A and GND change from DC5V to DC0V when the Mirror moves?	YES	Replace PWB-E or M7.
		NO	Replace PWB-A.
III	Check Mirror Reference Position PC86. See p. T-3 (PWB-A (IC4A) APB2)	YES	Check for overload. Or, replace PWB-A.
		NO	Check PC86.

**1-8. C0900: 3rd Drawer Lift-Up Sensor malfunction****C0904: 3rd Drawer Lift-Up Motor malfunction****C0950: 4th Drawer Lift-Up Sensor malfunction****C0954: 4th Drawer Lift-Up Motor malfunction**

Symbol	Name
PC19	3rd Drawer Lift-Up Sensor
PC23	4th Drawer Lift-Up Sensor
PC27	3rd Drawer Lifting Motor Pulse Detection Sensor
PC28	4th Drawer Lifting Motor Pulse Detection Sensor
M24	3rd Drawer Lift-Up Motor
M25	4th Drawer Lift-Up Motor
PWB-A	Master Board (PF-204)



C0900, C0950

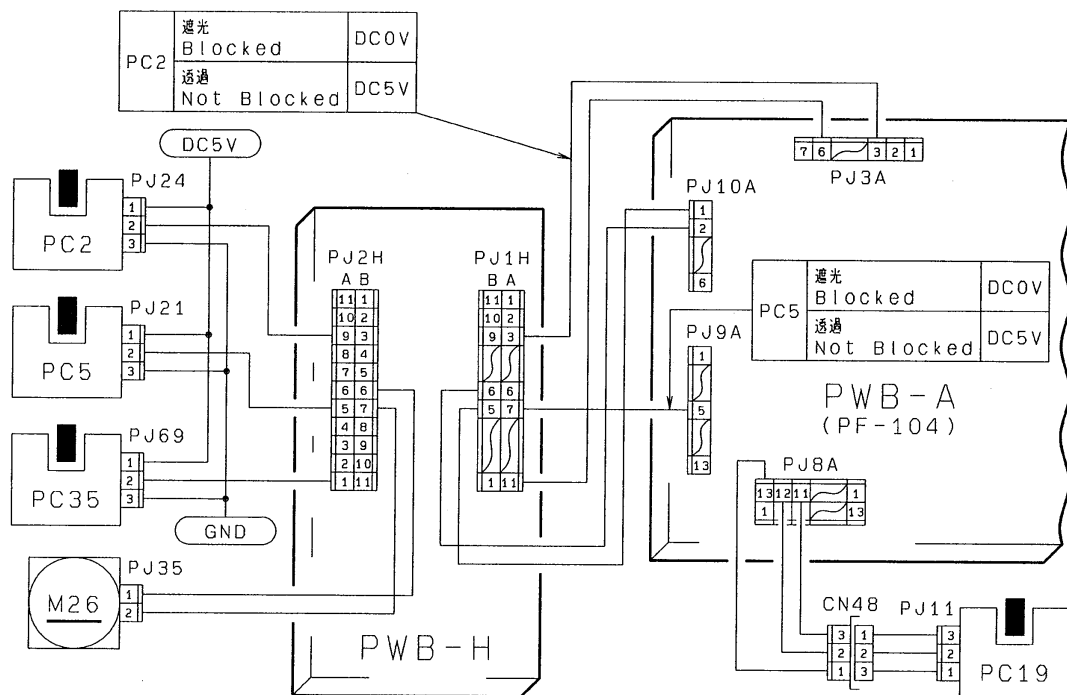
Step	Check Item	Result	Action
1	Is C0950 being shown?	YES	Perform step 3.
2	Check 3rd Drawer Lift-Up Sensor PC19. See p. T-3 (PF-204) PWB-A IC1A PG3.	YES	Replace PWB-A (PF-204).
		NO	Check the Paper Pressure Releasing mechanism and PC19.
3	Check 4th Drawer Lift-Up Sensor PC23. See p. T-3 (PF-204) PWB-A IC1A PF3.	YES	Replace PWB-A (PF-204).
		NO	Check the Paper Pressure Releasing mechanism and PC23.

C0904, C0954

Step	Check Item	Result	Action
A	Is C0954 being shown?	YES	Begin with step E.
B	Slide out the 3rd Drawer and slide it back into the copier. Does M24 turn at this time?	YES	Perform step D.
C	Does the voltage across PJ10A-3 on PWB-A (PF-204) and GND change from DC0V to DC24V, and then back to DC0V again, after the 3rd Drawer has been slid back into the copier?	YES	Replace M24.
		NO	Replace PWB-A (PF-204).
D	Check 3rd Drawer Lifting Motor Pulse Detecting Sensor PC27. See p. T-3 (PF-204) PWB-A IC1A PC1.	YES	Replace PWB-A (PF-204). Or, check the gears for possible overload.
		NO	Check the Pulse Disk and PC27.
E	Slide out the 4th Drawer and slide it back into the copier. Does M25 turn at this time?	YES	Perform step G.
F	Does the voltage across PJ10A-1 on PWB-A (PF-204) and GND change from DC0V to DC24V, and then back to DC0V again, after the 4th Drawer has been slid back into the copier?	YES	Replace M25.
		NO	Replace PWB-A (PF-204).
G	Check 4th Drawer Lifting Motor Pulse Detecting Sensor PC28. See p. T-3 (PF-204) PWB-A IC1A PD1.	YES	Replace PWB-A (PF-204). Or, check the gears for possible overload
		NO	Check the Pulse Disk and PC28.

**1-9. C0990: Main Tray Upward Motion Failure****C0991: Main Tray Downward Motion Failure****C0992: Main Tray Downward Motion Failure****C0993: Main Tray Upward Motion Failure****C0994: Main Tray Elevator M26's Failure to Turn**

Symbol	Name
PC2	Main Tray Lower Position Sensor
PC5	Elevator Motor Pulse Sensor
PC19	3rd Drawer Paper Lift-Up Sensor
PC35	Lower Position Sensor
M26	Elevator Motor
PWB-H	Cabinet Transport Board
PWB-A	Master Board (PF-104)



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C0990, C0991

Step	Check Item	Result	Action
1	Check 3rd Drawer Lift-Up Sensor PC19. See p. T-3 (PF-104) PWB-A IC1A PG3.	YES	Replace PWB-A (PF-104).
		NO	Check the Paper Pressure Releasing mechanism and PC19.

C0992, C0993

Step	Check Item	Result	Action
1	Check Lower Position Sensor PC35. See p. T-3. (PF-104) PWB-A IC2A PB3	YES	Replace PWB-A (PF-104)
		NO	Check the PC35.
2	Check Main Tray Lower Position Sensor PC2. See p. T-3. (PF-104) PWB-A IC2A PC1	YES	Replace PWB-A (PF-104)
		NO	Check the PC2.

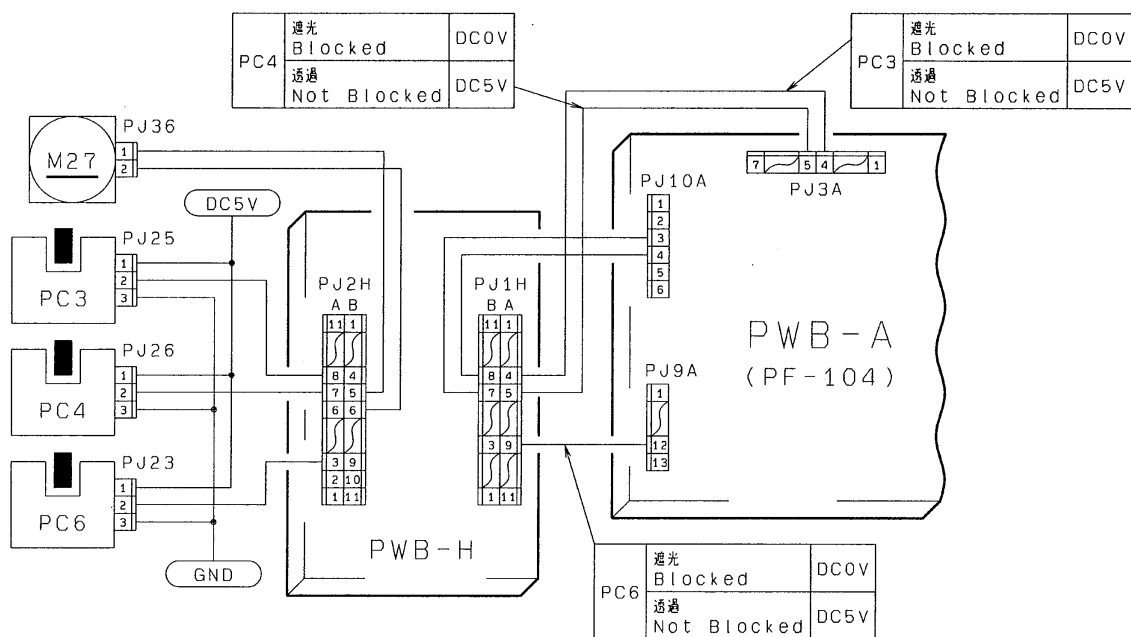
C0994

Step	Check Item	Result	Action
1	Does M26 turn when the Paper Descent key is pressed?	YES	Perform step 3.
2	Does the voltage across PJ10A-1 (down) on PF-104 PWB-A and GND, and across PJ10A-2 (up) and GND, change from DC0V to DC24V when the Drawer is slid in or the Paper Descent key is pressed?	YES	Replace M26 or check PWB-H and flat cable.
		NO	Replace PWB-A (PF-104)
3	Does the voltage across PJ9A-5 on PF-104 PWB-A and GND change in the range between DC0V and DC5V while M26 is turning?	YES	Replace PWB-A (PF-104)
		NO	Check the pulse disk, Gear, and Sensor.



**1-10. C0998: Shifter Transfer Failure****C0999: Shifter Return Failure****C099A: Shifter Return Failure****C099b: Shifter Transfer Failure****C099c: Shifter Motor M27's Failure to Turn**

Symbol	Name
PC3	Shifter Home Position Sensor
PC4	Shifter Return Position Sensor
PC6	Shift Motor Pulse Sensor
M27	Paper Shift Motor
PWB-H	Cabinet Transport Board
PWB-A	Master Board (PF-104)



1151C06TAA

C0998, C0999

Step	Check Item	Result	Action
1	Check Shifter Return Position Sensor PC4. See p. T-3 (PF-104) PWB-A IC2A PD1.	YES	Replace PWB-A (PF-104).
		NO	Check PWB-H, flat cable and PC4.

C099A, C099b

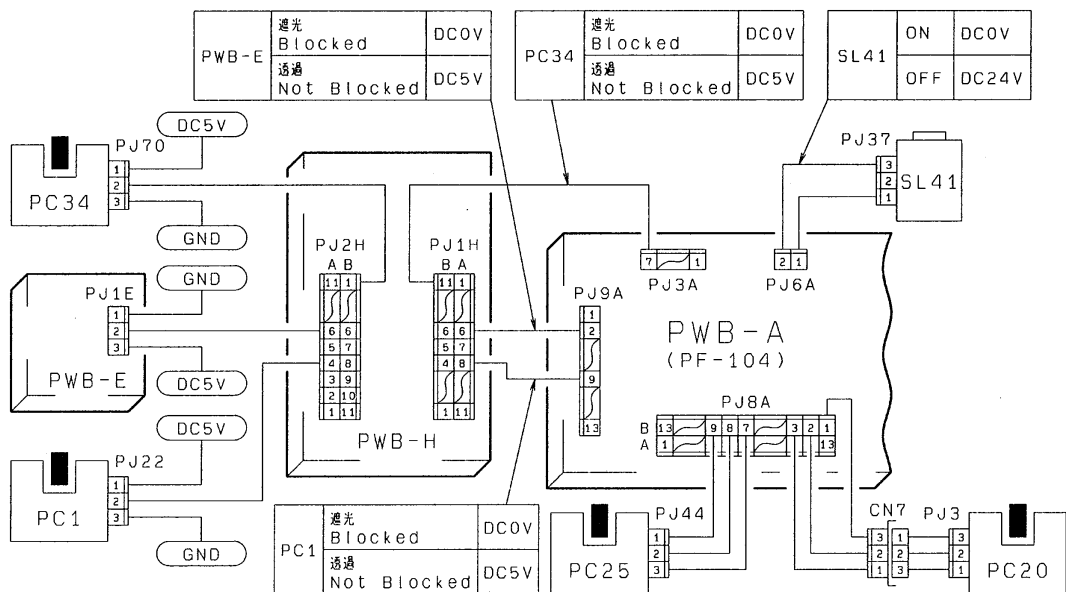
Step	Check Item	Result	Action
1	Check Shifter Home Position Sensor PC3. See p. T-3 (PF-104) PWB-A IC2A PC0	YES	Replace PWB-A (PF-104)
		NO	Check PWB-H, flat cable and PC3.

C099C

Step	Check Item	Result	Action
1	Does M27 turn when the Drawer is slid in with a paper stack loaded in the Shift Tray?	YES	Perform step 3.
2	Does the voltage across PJ10A-3 (moving to right) on PF-104 PWB-A and GND change from DC0V to DC24V when doing step 1?	YES	Replace M27 or check PWB-H and flat cable.
		NO	Replace PWB-A (PF-104)
3	Does the voltage across PJ9A-12 on PF-104 PWB-A and GND change from DC0V to DC5V while M27 is turning?	YES	Replace PWB-A (PF-104)
		NO	Check the pulse disk, Gear, and Sensor.

**1-11. C099E: Shift Gate Position Detecting Failure****C099F: Shift Gate Position Detecting Failure****C0996: 3rd Drawer Lock Release Failure****C0F79: Paper Empty Sensor Failure**

Symbol	Name
PC1	Shift Tray Paper Empty Sensor
PC25	3rd Drawer Set Sensor
PC20	3rd Drawer Paper Empty Sensor
PC34	Shift Gate Position Detecting Sensor
SL41	3rd Drawer Lock Solenoid
PWB-E	Main Tray Paper Empty Board
PWB-H	Cabinet Transport Board
PWB-A	Master Board (PF-104)



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C099E, C099F

Step	Check Item	Result	Action
1	Check Shift Gate Position Detecting Sensor PC34. See p. T-3 (PF-104) PWB-A IC1A PC1.	YES	Replace PWB-A (PF-104).
		NO	Check PWB-H, flat cable and PC34.

C0996

Step	Check Item	Result	Action
2	Does the voltage across PJ6A-2 on PF-104 PWB-A and GND change from DC0V to DC24V when the Paper Descent Key is pressed and the Main Tray has completed downward motion?	YES	Replace SL41.
		NO	Replace PWB-A (PF-104)
3	Check 3rd Drawer Set Sensor PC25. See p. T-3 (PF-104) PWB-A IC1A PG2	YES	Replace PWB-A (PF-104)
		NO	Check PWB-H, flat cable and PC25.

C0F79

Step	Check Item	Result	Action
1	Check 3rd Drawer Paper Empty Sensor PC20. See p. T-3 (PF-104) PWB-A IC1A PC0.	YES	Replace PWB-A (PF-104)
		NO	Check PC20.
2	Check Main Tray Paper Empty Board PWB-E. See p. T-3 (PF-104) PWB-A IC1A PF3.	YES	Replace PWB-A (PF-104)
		NO	Check PWB-H, flat cable and PWB-E.
3	Check Shift Tray Paper Empty Sensor PC1. See p. T-3 (PF-104) PWB-A IC1A PD1	YES	Replace PWB-A (PF-104)
		NO	Check PWB-H, flat cable and PC1.

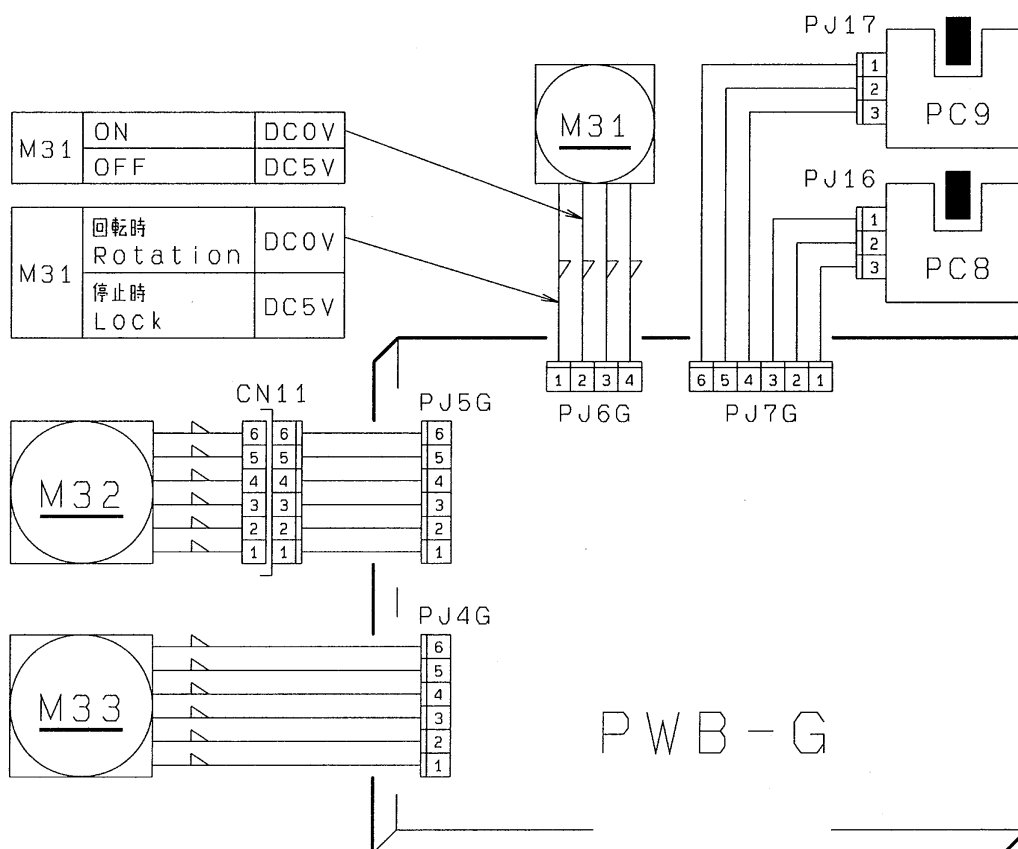
# **1-12. C0d00: Duplex Unit Front/Rear Edge Guide Plates home position detection failure**

**C0d20: Duplex Unit Trailing Gate Unit home position detection failure**

**C0d50: Duplex Unit Drive Motor's failure to turn**

**C0d51: Duplex Unit Drive Motor turning at abnormal timing**

Symbol	Name
PC8	Duplex Gate Home Position Sensor
PC9	Front/Rear Edge Guide Plate Home Position Sensor
M31	Duplex Unit Drive Motor
M32	Gate Motor
M33	Front/Rear Edge Guide Drive Motor
PWB-G	Duplex Unit Master Board



## C0d00, C0d20

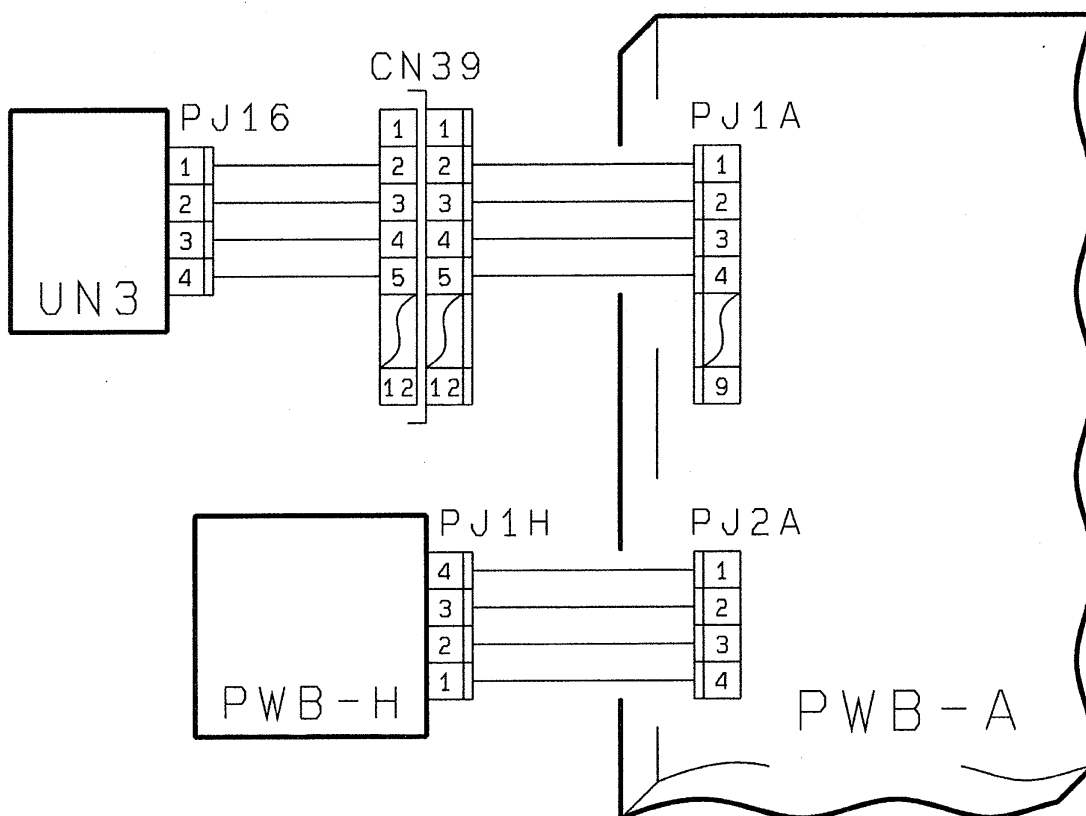
Step	Check Item	Result	Action
1	Is C0d20 being shown?	YES	Perform step 4.
2	Does Front/Rear Edge Guide Drive Motor M33 start turning when the Power Switch is turned ON or the Duplex Unit slid into position?	YES	Check for possible overload.
		NO	Replace PWB-G, PWB-A (PF-204) (PF-4D), or M33.
3	Check Front/Rear Edge Guide plate Home position sensor PC9. See p. T-3 (AD-8) PWB-G IC1G PC3.	YES	Replace PWB-G or PWB-A (PF-204) (PF-4D).
		NO	Check PC9.
4	Does Gate Motor M32 start turning when the Power Switch is turned ON or the Duplex Unit slid into position?	YES	Check for possible overload.
		NO	Replace PWB-G, PWB-A (PF-204) (PF-4D), or M32.
5	Check Duplex Gate Home Position Sensor PC8. See p. T-3 (AD-8) PWB-G IC1G PE0.	YES	Replace PWB-G or PWB-A (PF-204) (PF-4D).
		NO	Check PC8.

## C0d50, C0d51

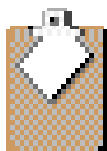
Step	Check Item	Result	Action
A	Is C0d51 being shown?	YES	Begin with step E.
B	Does Duplex Unit Drive Motor M31 start turning when the Start Key is pressed?	YES	Check the rollers, rolls, and gears for possible overload.
C	Does the voltage across PJ6G-2 on PWB-G and GND change from DC5V to DC0V when the Start Key is pressed?	NO	Replace PWB-G or PWB-A (PF-204) (PF-4D).
D	Does the voltage across PJ6G-1 on PWB-G and GND remain DC5V when the Start Key is pressed?	YES	Replace M31.
		NO	Replace PWB-G or PWB-A (PF-204) (PF-4D).
E	Does the voltage across PJ6G-2 on PWB-G and GND remain DC0V when the Power Switch is turned ON?	YES	Replace PWB-G or PWB-A (PF-204) (PF-4D).
F	Does the voltage across PJ6G-1 on PWB-G and GND remain DC0V when the Power Switch is turned ON?	YES	Replace M31.
		NO	Replace PWB-G or PWB-A (PF-204) (PF-4D).

**1-13. C0F10: Faulty AE Sensor level****C0F30: ATDC Sensor malfunction**

Symbol	Name
PWB-A	Main Control Board
PWB-H	AE Sensor Board
UN3	ATDC Sensor



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**C0F10**

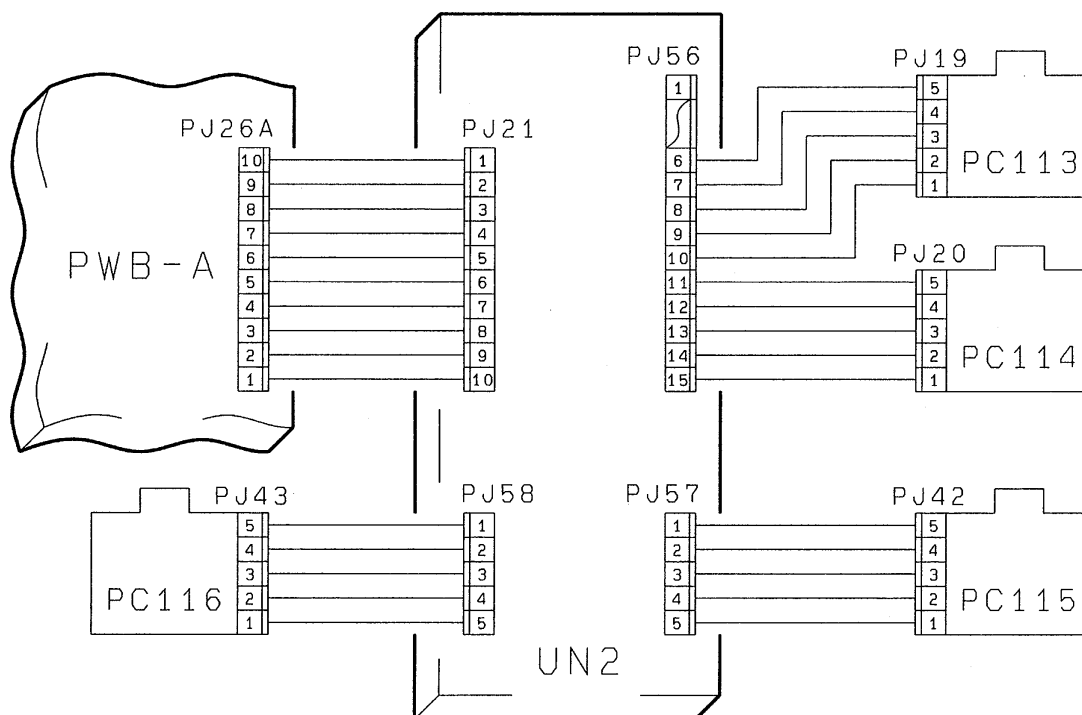
Step	Check Item	Result	Action
1	Is the voltage across PJ12A-3 on PWB-A and GND in the range between DC2V and DC4V when the Start Key is pressed in the F3 operation?	YES	Replace PWB-A.
		NO	Check the photo receiver of the AE Sensor for contamination or replace PWB-H.

**C0F30**

Step	Check Item	Result	Action
A	Is the voltage across PJ1A-3 on PWB-A and GND DC0V after the Power Switch has been turned ON?	YES	Check the ATDC Sensor and the connection between the Imaging Unit and copier.
B	Is the voltage across PJ1A-3 on PWB-A and GND in the range between DC0.5V and DC4.5V after the Start Key has been pressed?	YES	Replace PWB-A.
		NO	Replace the ATDC Sensor.

**1-14. C0F02: Original size detection error (Defective CPU)****C0FE2 to C0FFF: Original Size Detecting Sensor failure**

Symbol	Name
PC113	Original Size Detecting Sensor FD2
PC114	Original Size Detecting Sensor CD1
PC115	Original Size Detecting Sensor FD3
PC116	Original Size Detecting Sensor CD2
UN2	Original Size Detecting Board
PWB-A	Master Board



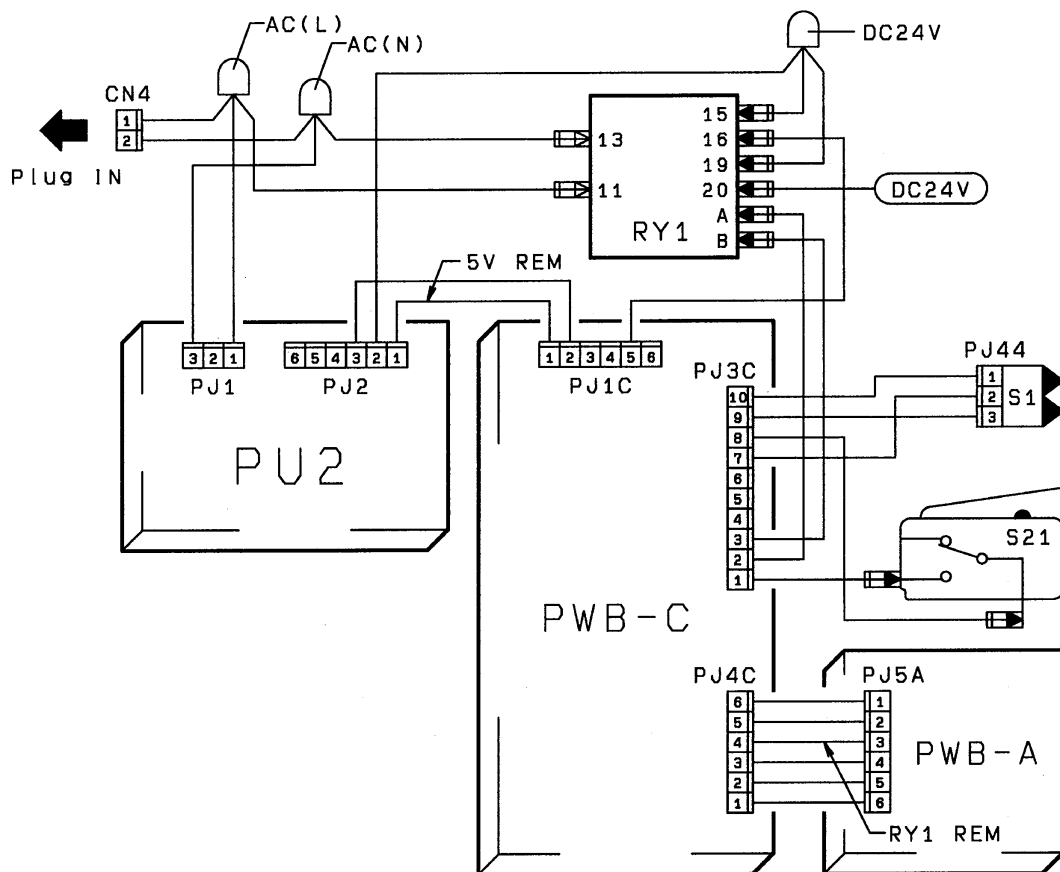
1151C09TAA

Step	Check Item	Result	Action
1	Is any code from among C0FE2 to C0FFF being shown?	YES	Perform step 4.
2	Are jumper straps installed in the following position for J1 and J2 of UN2? J1: On the end not marked with "O" J2: On the end not marked with "O"	NO	Change the strap position of J1 and J2.
3	Does the LED of I/O port check PWB-A (IC5A) PA3 blink after the Power Switch has been turned ON?	YES	Replace PWB-A.
		NO	Replace UN2.
4	Is the Sensor located at the correct position?	NO	Change the position of the Sensor.
5	Does the problem persist even after the corresponding Sensor has been replaced?	YES	Replace UN2 or PWB-A.

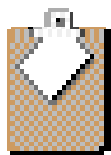


**2. Power is not Turned ON**

Symbol	Name
PWB-A	Master Board
PWB-C	Power Supply Board
PU2	DC Power Supply Unit
S1	Power Switch
S21	Front Door Interlock Switch
RY1	Main Relay



1151C08TAA



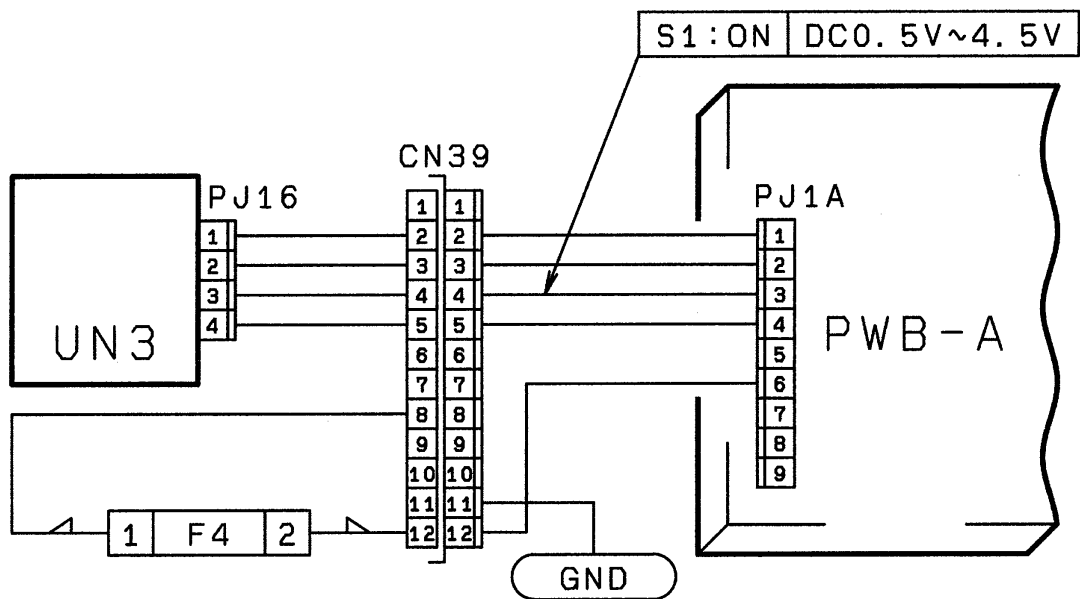
Symptom	Step	Check Item	Result	Action
Power is not supplied to the copier at all.	1	Is the source voltage being supplied to the circuit across PJ1-1 and 3 of PU2?	NO	Check Fuse or line voltage.
	2	Is the voltage across PJ3-1 of PU2 and GND, and across PJ3-3 on PU2 and GND, DC24V?	NO	Check Fuse of PU2 or replace PU2.
	3	Is the voltage across PJ1C-3 on PWB-C and GND, and across PJ1C-5 on PWB-C and GND, DC24V?	NO	Check S1 and S21.
	4	Is LD1 on PWB-A lit up?	NO	Check Fuse of PWB-C or replace PWB-C.
Only the control panel Indicators light up. RY1 is not energized.	5	Is the voltage across PJ1C-3 on PWB-C and GND DC24V?	NO	Check S21.
	6	Is the voltage across PJ1A-14 on PWB-A and GND, and across PJ1A-15 on PWB-A and GND, near DC0V?	NO	Replace PWB-A.
	7	Is the voltage across PJ1C-2 on PWB-C and GND DC24V after the Power Switch has been turned ON?	NO	Replace PWB-C.
	8	Is the voltage across PJ1C-1 on PWB-C and GND DC0V after the Power Switch has been turned ON?	NO	Check RY1.

\* If the problem persists even after the above procedures, the harness is probably short-circuited.  
Check the harnesses.

### 3. E1, E2

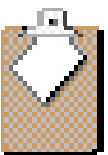


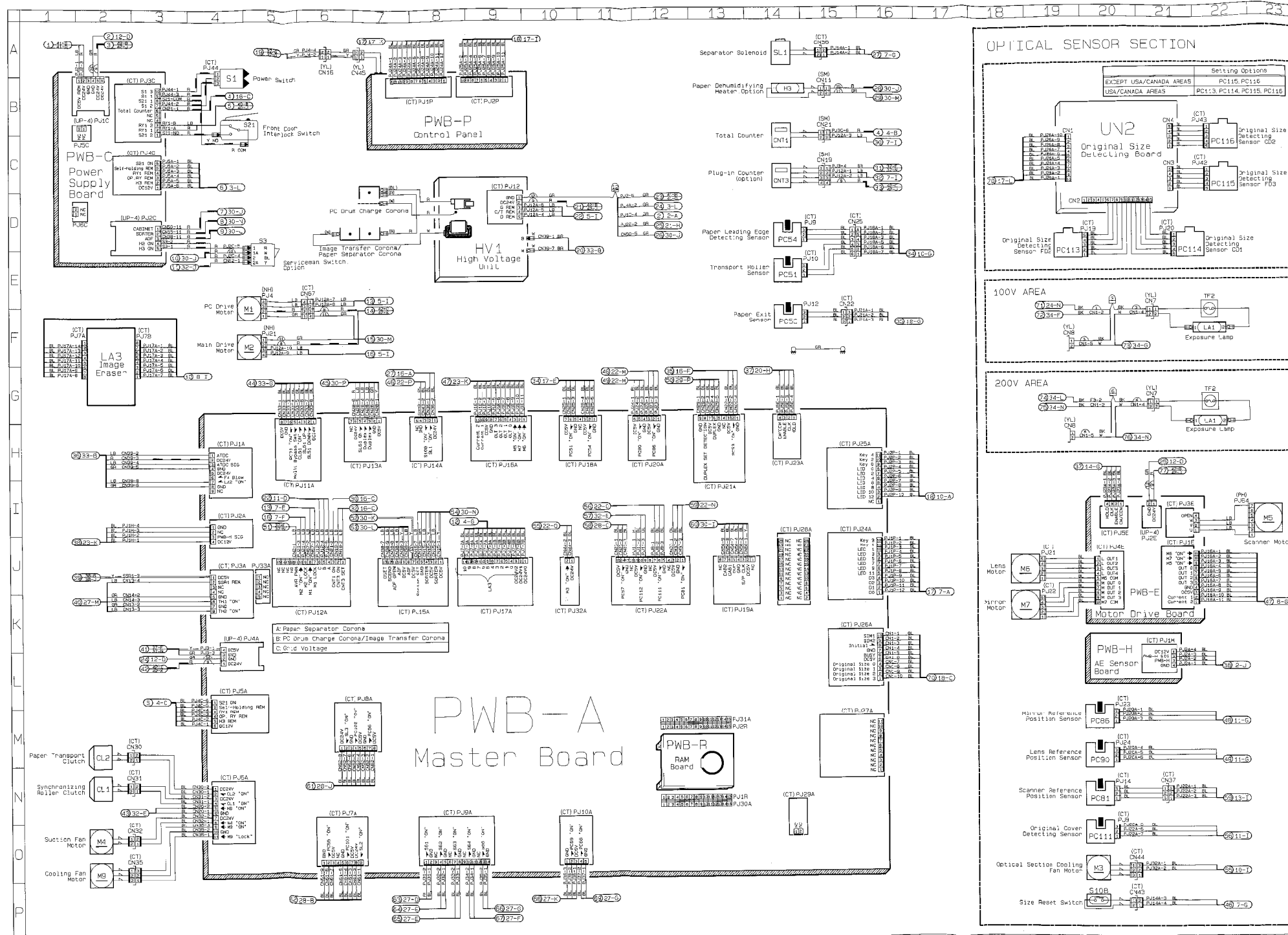
Symbol	Name
UN3	ATDC Sensor
F4	I/U Fuse
PWB-A	Master Board



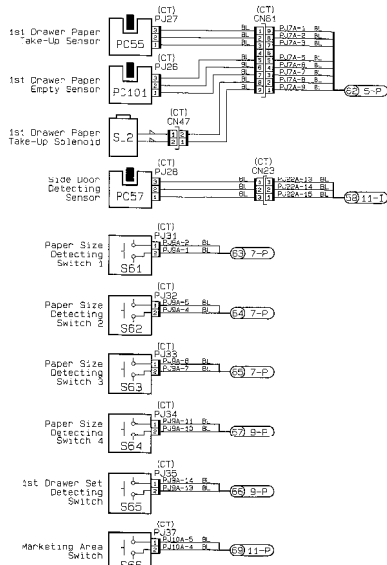
1151C07TAA

Code	Step	Check Item	Result	Action
E1	1	Is the seal peeled off the opening or starter been fully charged?	NO	Peel off the seal and turn the Power Switch OFF, then ON.
	2	Is the voltage across PJ1A-3 on PWB-A and GND in the range between DC0.5V and DC4.5V after the Start Key has been turned ON?	YES	Replace PWB-A.
			NO	Replace the ATDC Sensor.
E2	A	Is the voltage across PJ1A-6 on PWB-A and GND 0V (is F4 blown)?	YES	Replace PWB-A.
			NO	Replace F4 or PWB-A.

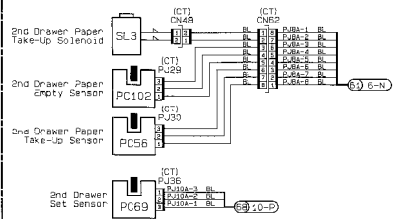




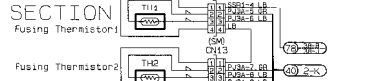
## UPPER DRAWER



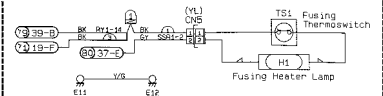
## LOWER DRAWER



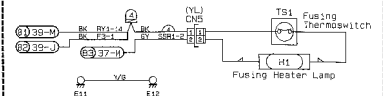
## FUSING SECTION



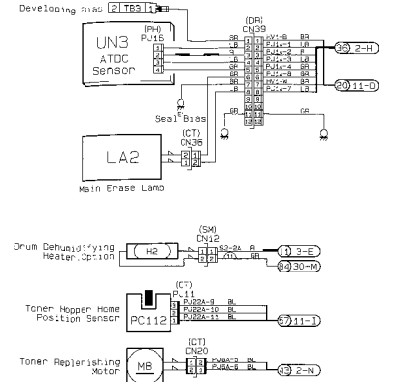
## 100V AREA



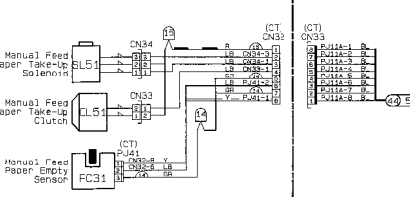
## 200V AREA



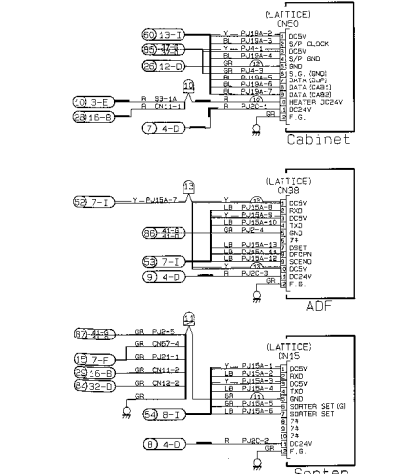
## DEVELOPING SECTION



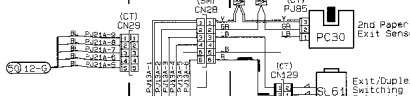
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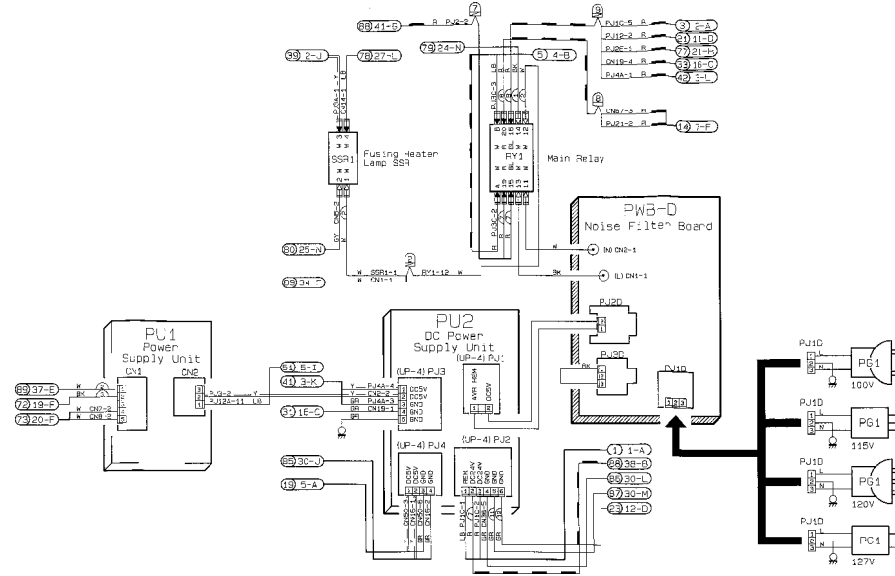
## OPTION



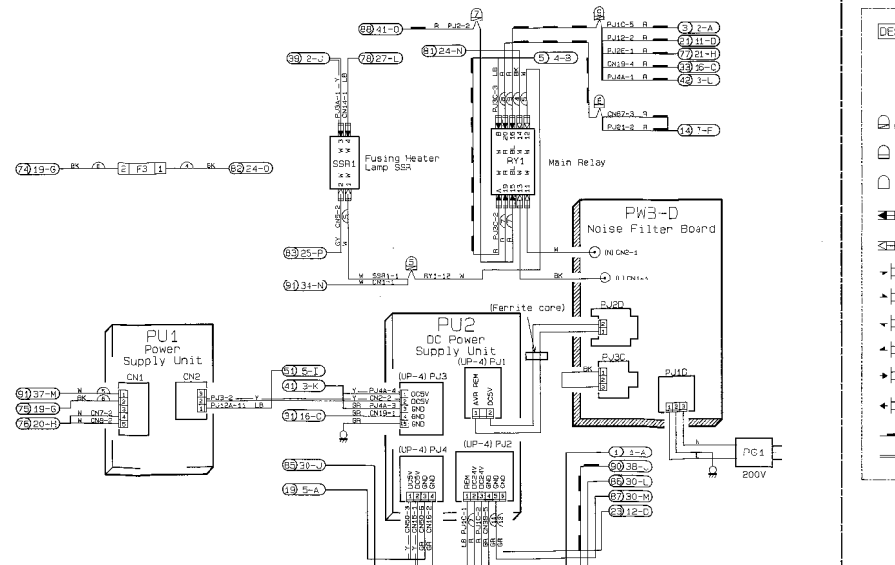
## DUPLX



## 100V AREAS



## 200V AREA

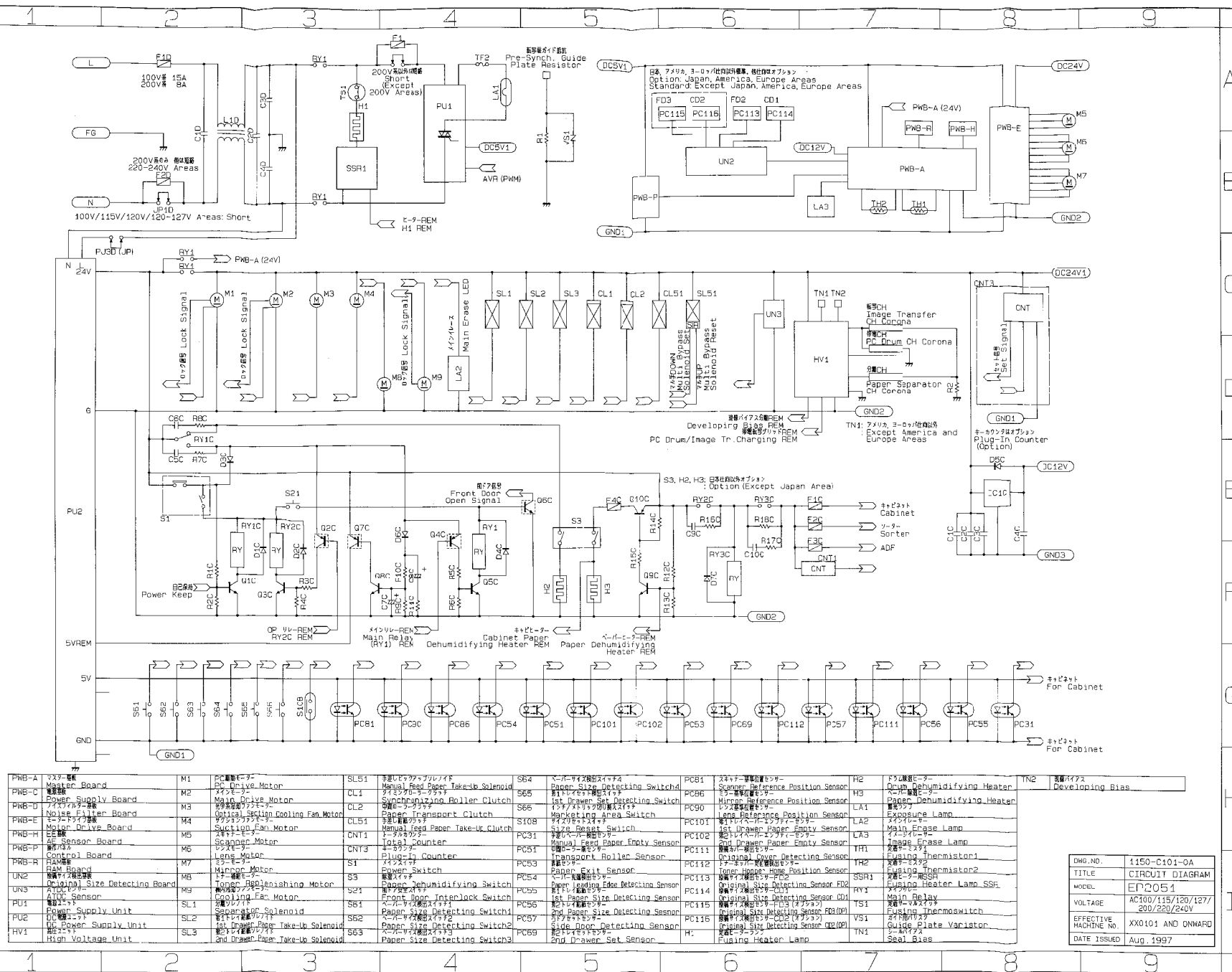


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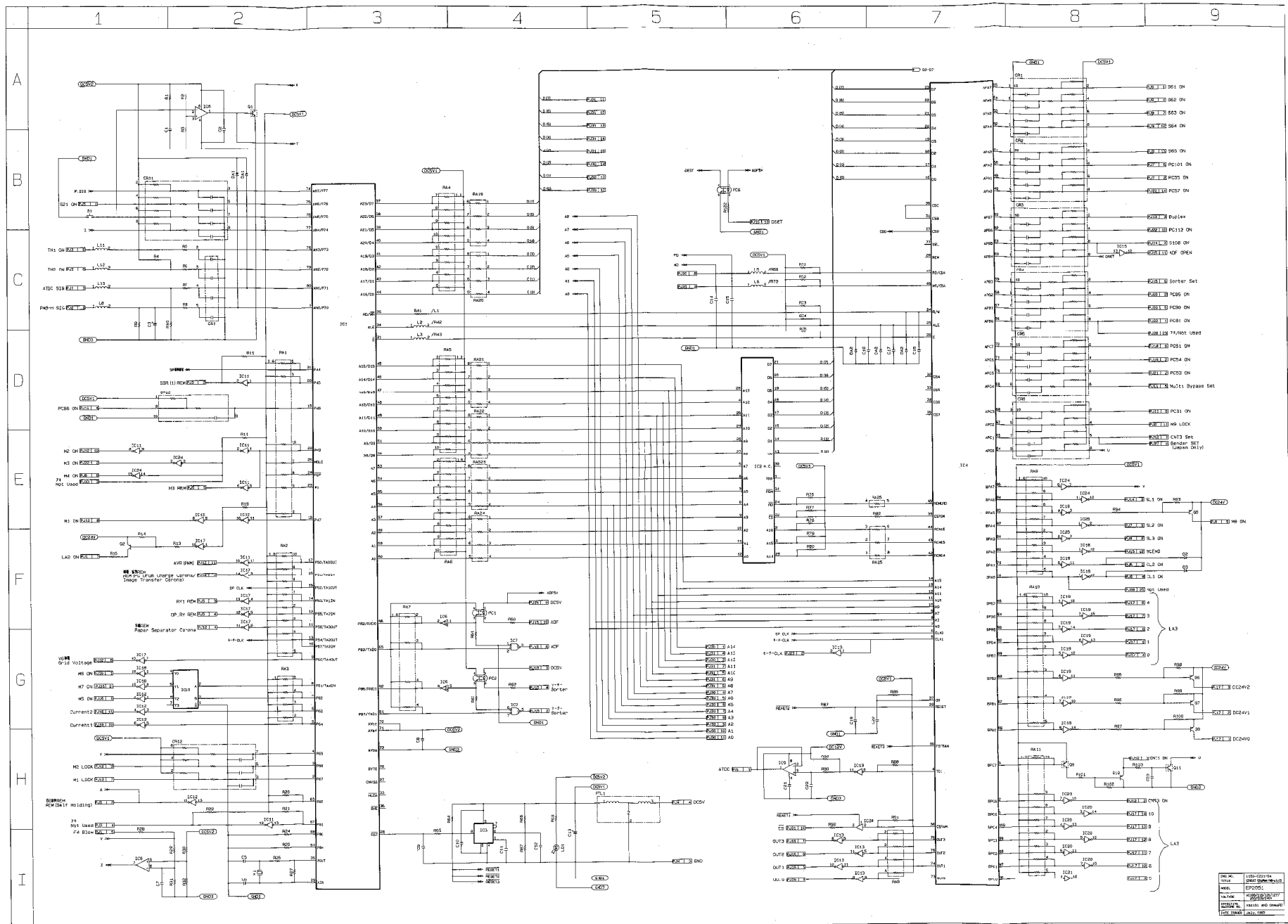
DESTINATION NO. LOCATION

- CLOSE END CONNECTORS LARGE
- CLOSE END CONNECTORS MEDIUM
- CLOSE END CONNECTORS SMALL
- POSITIVE LOCK RECEPTACLE #250 WITH HOUSING
- POSITIVE LOCK RECEPTACLE #187 WITH HOUSING
- OUTPUT OF ACTIVE LOW
- OUTPUT OF ACTIVE HIGH
- INPUT OF ACTIVE LOW
- INPUT OF ACTIVE HIGH
- OUTPUT OF ACTIVE HIGH OR LOW
- INPUT OF ACTIVE HIGH OR LOW

DWG. NO.	1150-0001-0A
TITLE	WIRING DIAGRAM
MODEL	EP2051
VOLTAGE	AC: 100/115/220/240V DC: 24V/5V
EFFECTIVE MACHINE NO.	X0101 AND ONWARD
DATE ISSUED	JULY, 1997

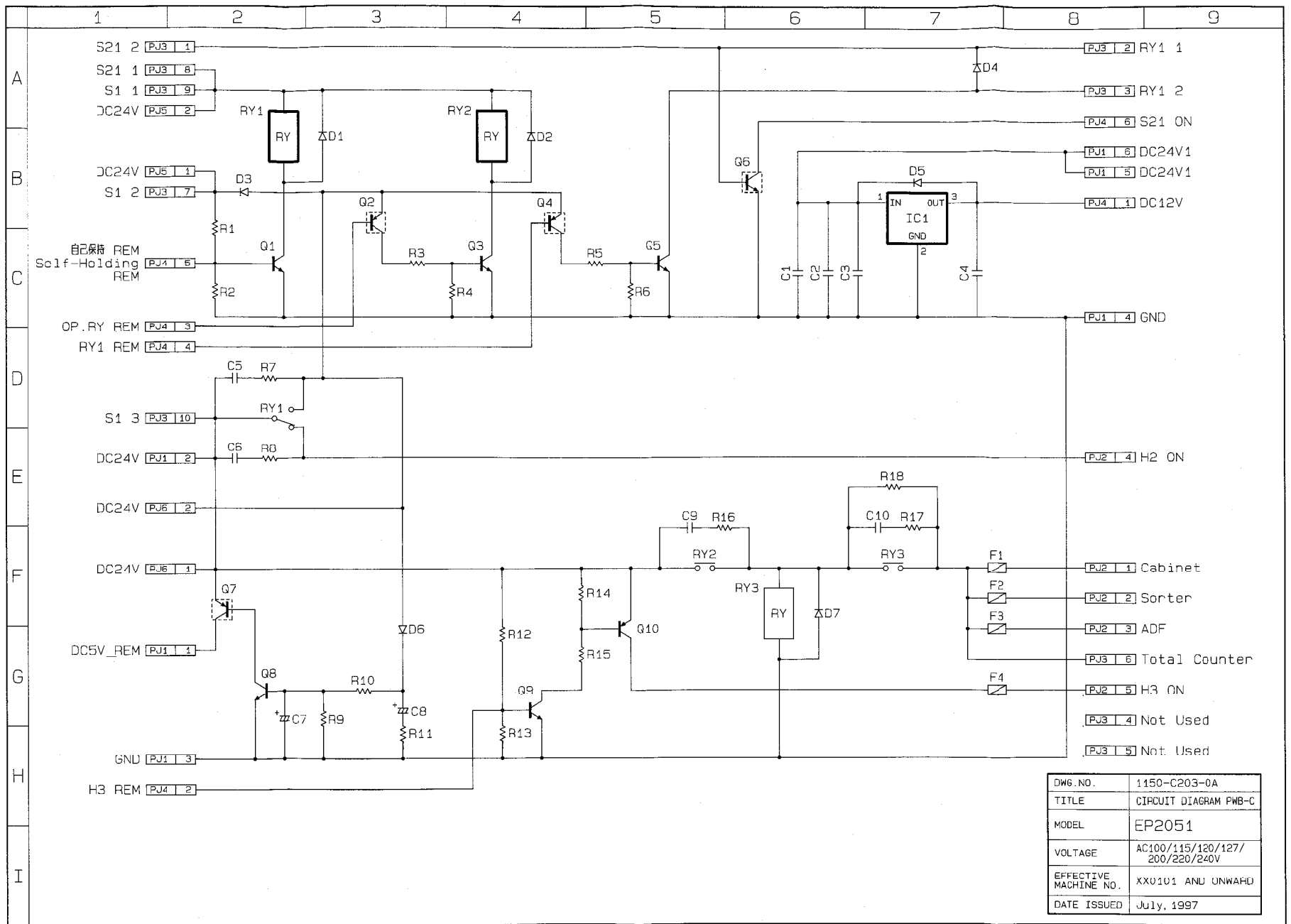


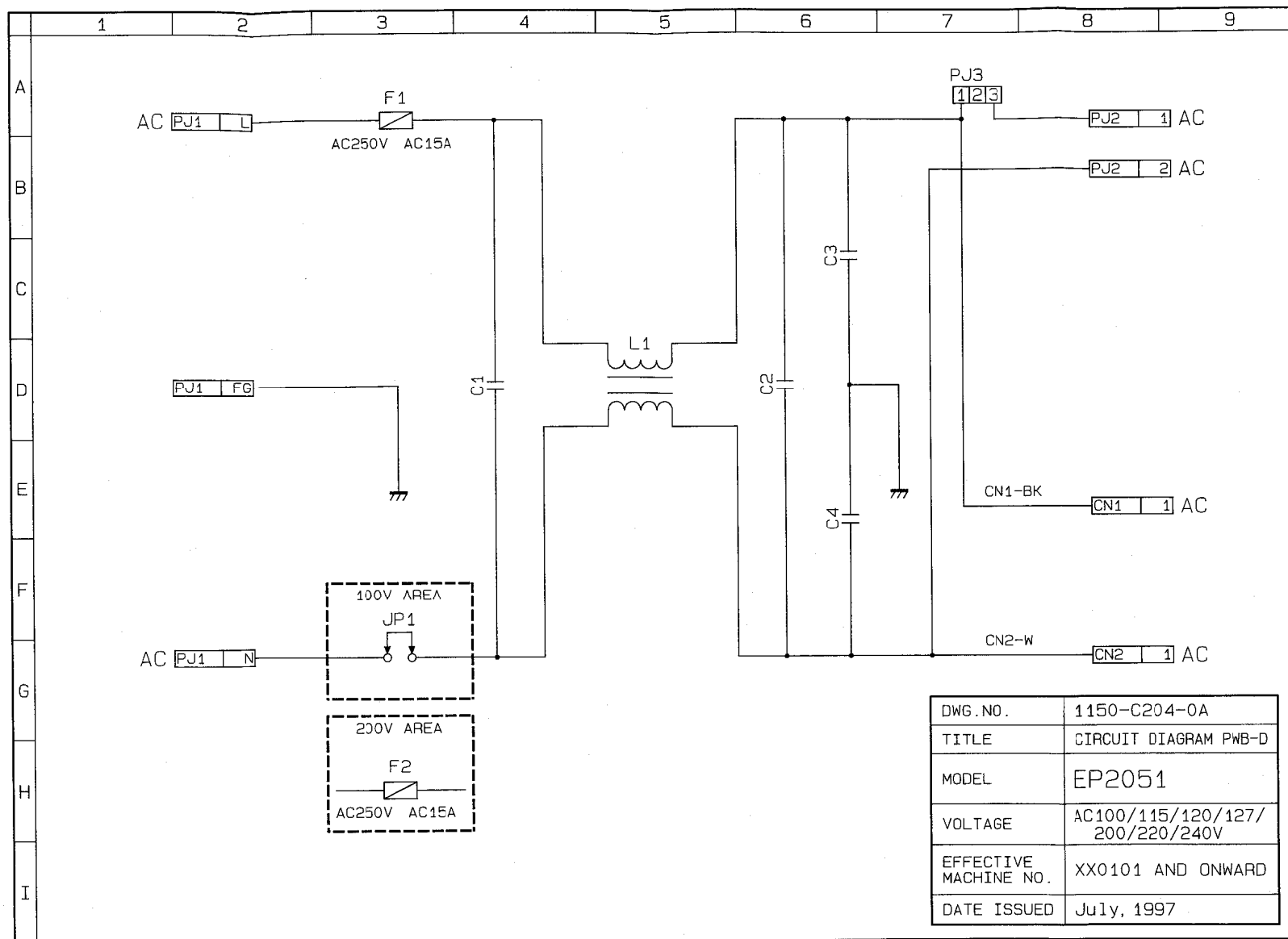
DWG. NO.	1150-C101-0A
TITLE	CIRCUIT DIAGRAM
MODEL	EP2051
VOLTAGE	AC100/115/120/127/200/220/240V
EFFECTIVE MACHINE NO.	XX0101 AND ONWARD
DATE ISSUED	Aug. 1997

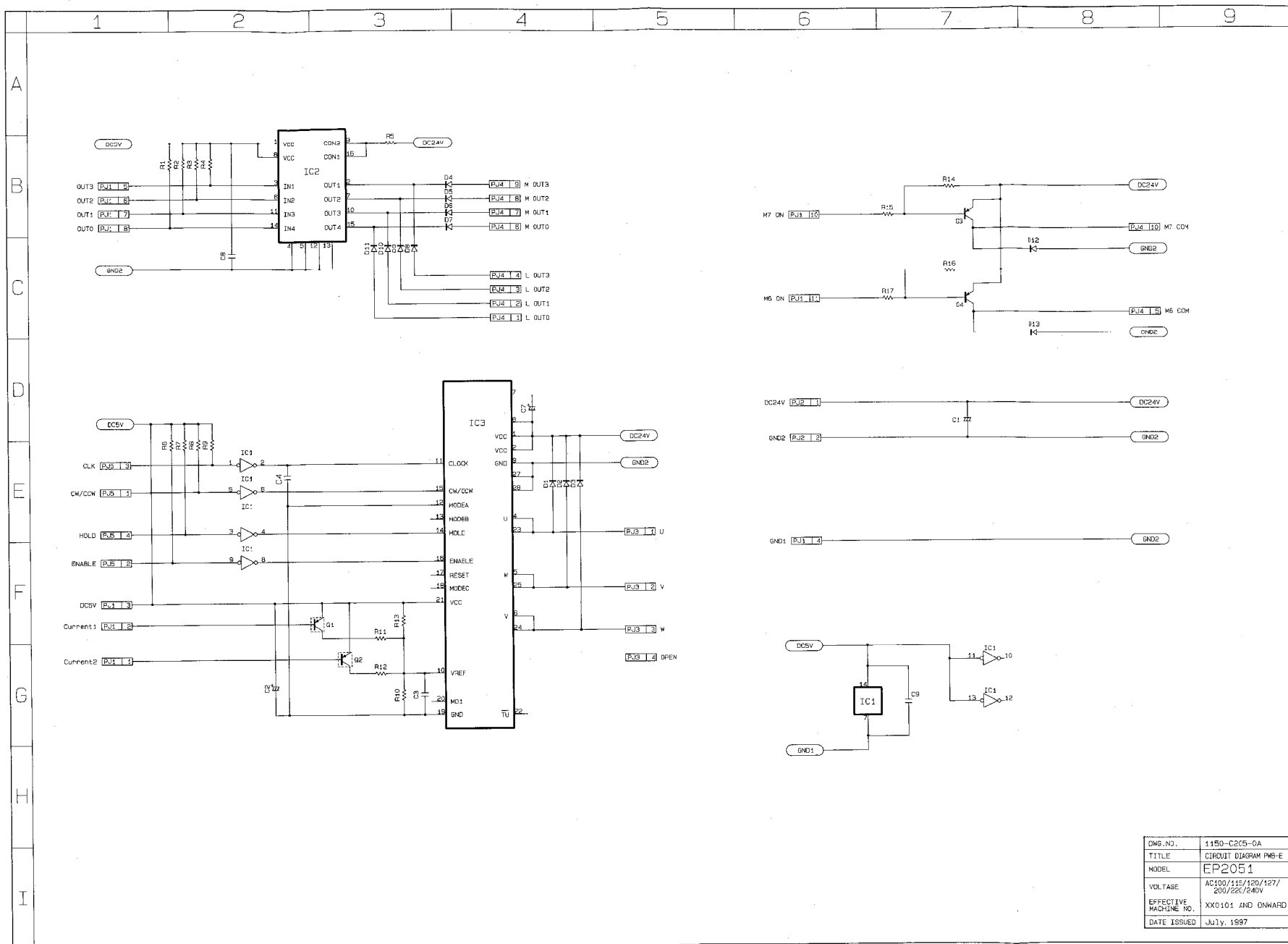












DWG. NO.	1150-C2C5-0A
TITLE	CIRCUIT DIAGRAM PWS-E
MODEL	EP2051
VOLTAGE	AC100/115/120/127/ 200/220/240V
EFFECTIVE MACHINE NO.	XX0101 AND ONWARD
DATE ISSUED	JULY 1997

